The MINING CONGRESS JOURNAL

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Mr. C. W. Watson, President, Consolidation Coal Company, New York City

said among other things, in the March 13, 1924 issue of Coal Age—

> ***"In my judgment, the clearest road toward profitable business this year, for both individual companies and for producing districts, lies in the direction of cheap coal. This does not mean the saving of a few cents per ton here and there, so much as it means applying every method of economy, efficiency and improved machinery . . . . . "***

Mr. Watson has very sagely pointed out the path which must be followed if coal is to be produced at a competitive price. Consumers are determined to secure good coal at the lowest possible prices consistent with good business. High cost mines can not hope to compete with efficiently manned and equipped mines, producing coal economically.

At some mines the operating forces are recommending improvements which will make for economy but are being blocked by the mechanical and electrical departments.

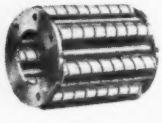
At other mines the mechanical and electrical engineers are urging improvements, but due to opposition of operating and financial heads their efforts are going for naught.

Sound economics will support the purchase of proven quality equipment as the cheapest in the end. Its use is effective in conserving labor, keeping repairs to a minimum and increasing production. All of which means a low coal cost, which should and must be the aim of all branches of mine management.

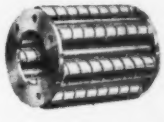
As Mr. Watson has said, the savings must be as large as possible and they must be made in every manner that common sense and good engineering indicates.

However, a start must be made somewhere and a good place to begin is with the haulage system, if the mine cars are equipped with plain bearings. Hyatt mine car bearings are lowering the cost per ton in hundreds of mines and through their general advantages are proving to be an excellent investment.

More complete information concerning Hyatt mine car bearings may be secured from this company or from the majority of mine car manufacturers. Almost all of the reputable ones take pride in furnishing their standard Hyatt equipment.



HYATT ROLLER BEARING COMPANY
NEWARK, N. J.



"On to Cincinnati for Lower-Costs-Per-Ton, May 12th to 17th"

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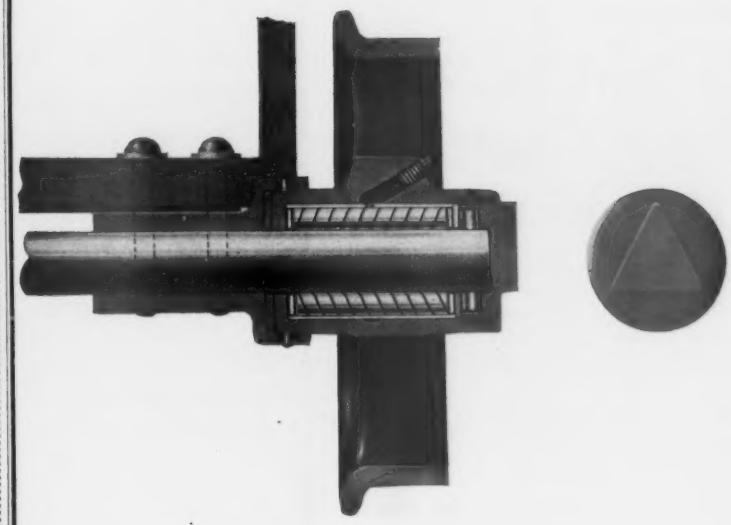
ENDURANCE and SATISFACTORY RESULTS



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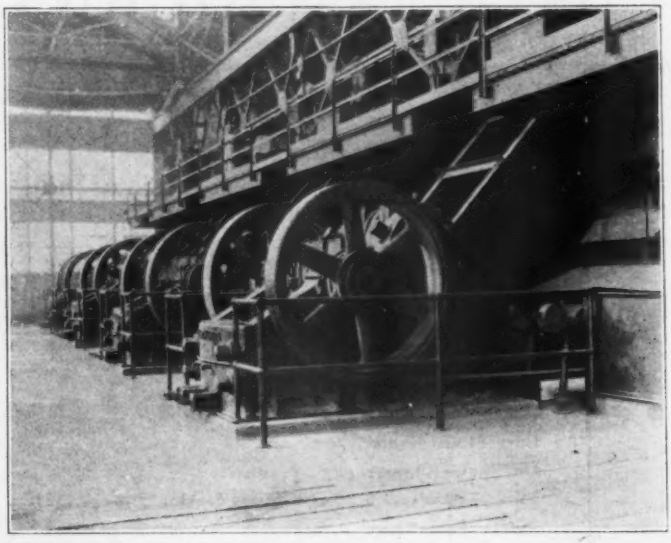

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H. C. ADAMS, President

TO ALL WHO MINE COAL

Gentlemen:

In this issue of "The Explosives Engineer" is a program of the practical operating problems to be discussed at the National Exposition of Mines and Mine Equipment to be held in Cincinnati, May 12 to 17. These meetings are to be held under the auspices of the American Mining Congress during the same week as, but not conflicting with, the Seventh Annual Convention of the National Coal Association.

At the session devoted to the discussion of better blasting methods, of which I have been appointed chairman, there will be a report of what has been done in the Springfield, Ill. district since last September. The need for reducing the percentage of slack became so urgent in our district that I requested the co-operation of the American Mining Congress last year, and at Milwaukee we brought together operators, superintendents, shot-firers, miners, and representatives of various explosives manufacturers. Following this, we conducted some experiments in our mines, and kept careful records of results. Similar investigations have been carried on independently in the Pittsburgh district, and these will also be reported at Cincinnati.

The thought underlying the entire program has been to present for discussion the principal operating problems that confront the industry, and I sincerely hope that you can arrange to be present and give us the benefit of your knowledge and experience. Moreover, it will be a most unusual opportunity for you to see a complete exhibit of the latest developments in coal mining equipment and machinery, and to learn what others are doing to solve the problems that you meet in your daily work.

Be sure to come to the informal get together dinner preceding the discussions on blasting, Tuesday, May 13, at 6:30 P.M.

Yours very truly,

H. C. Adams

President, Central Illinois Coal Operators Association

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125 Exhibits

Discussion Leaders

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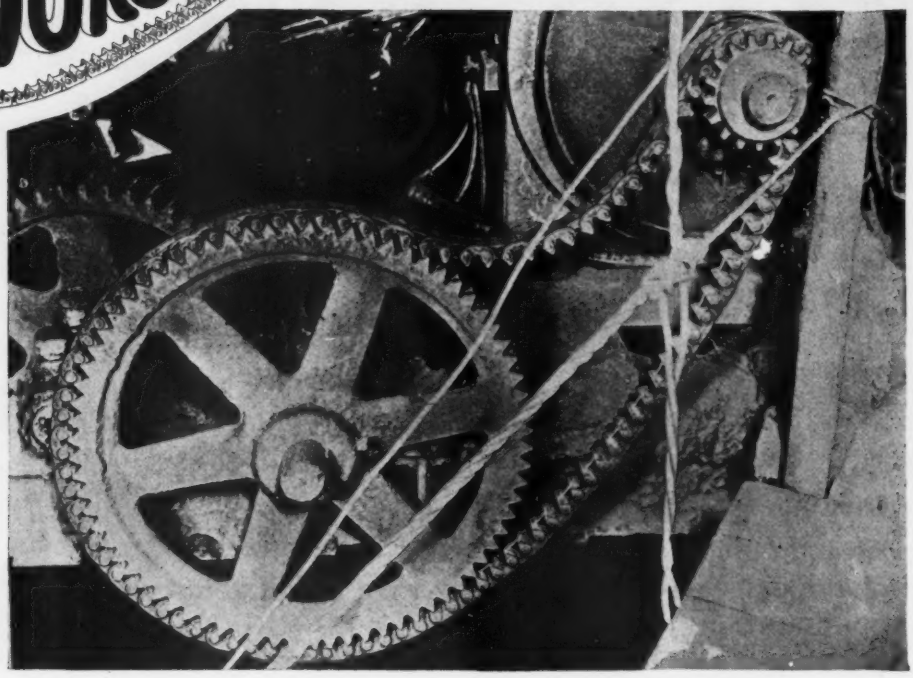

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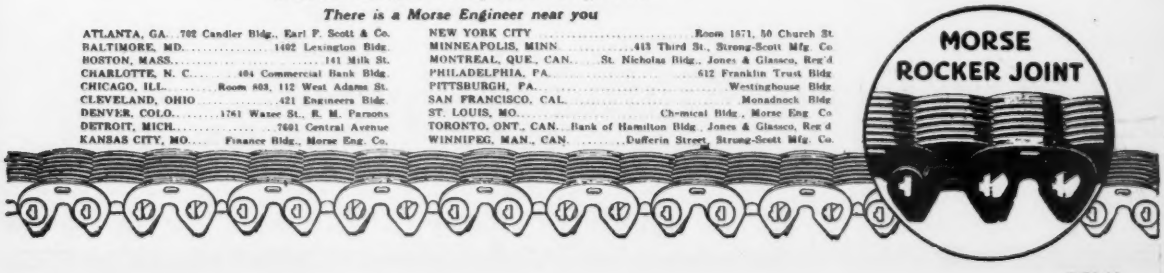

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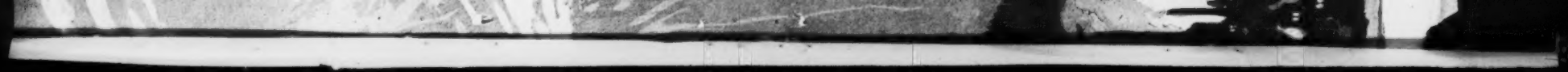

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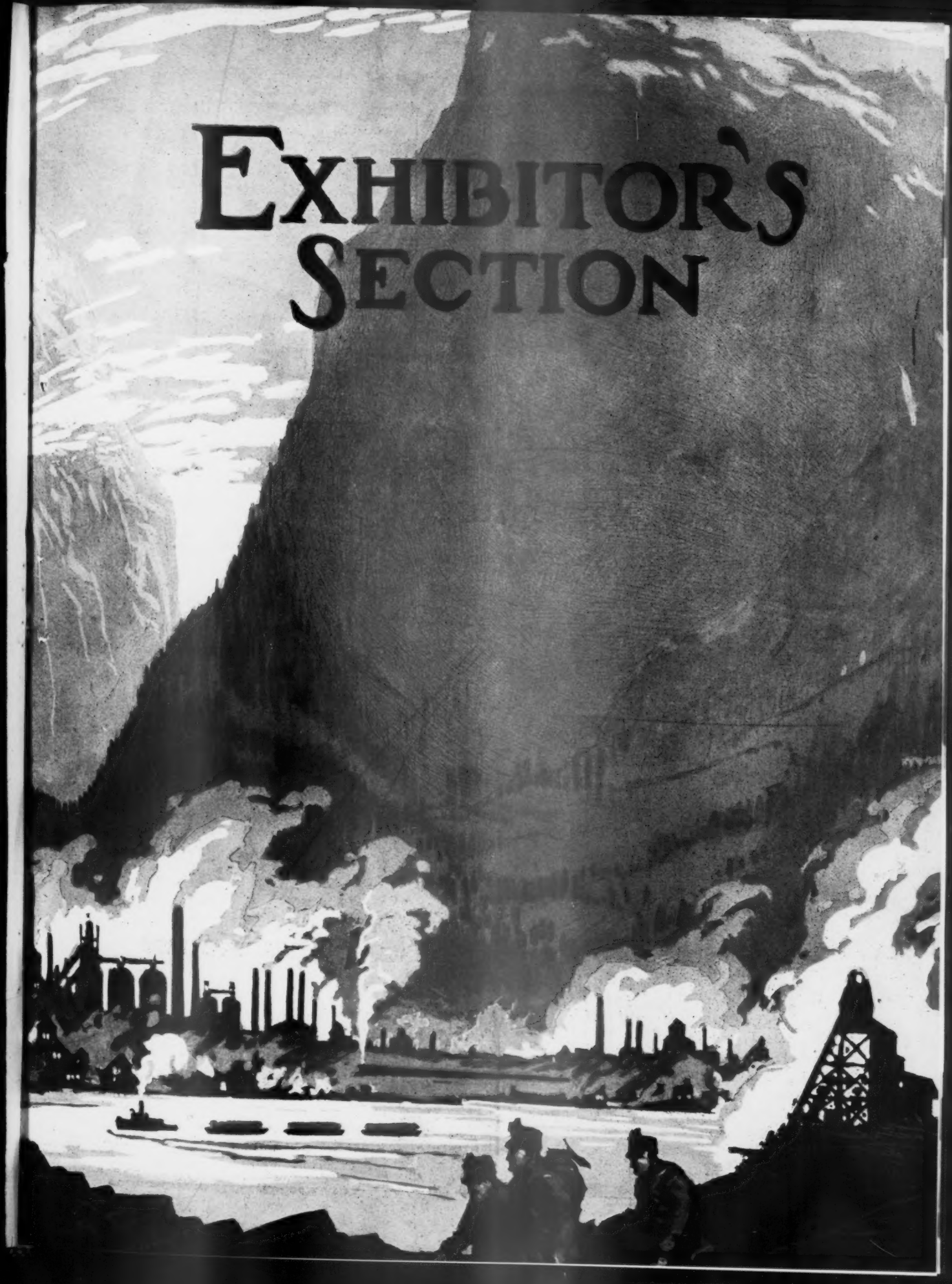

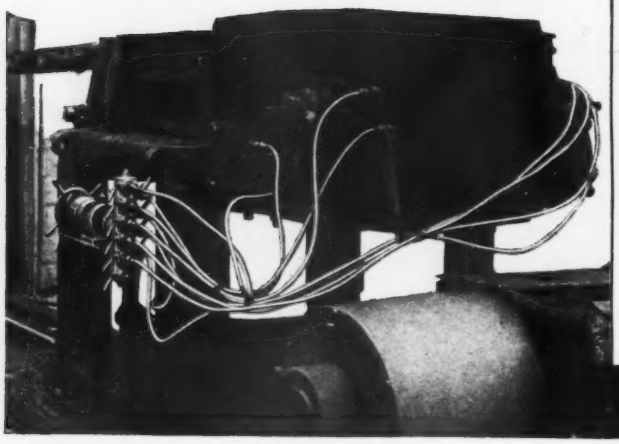

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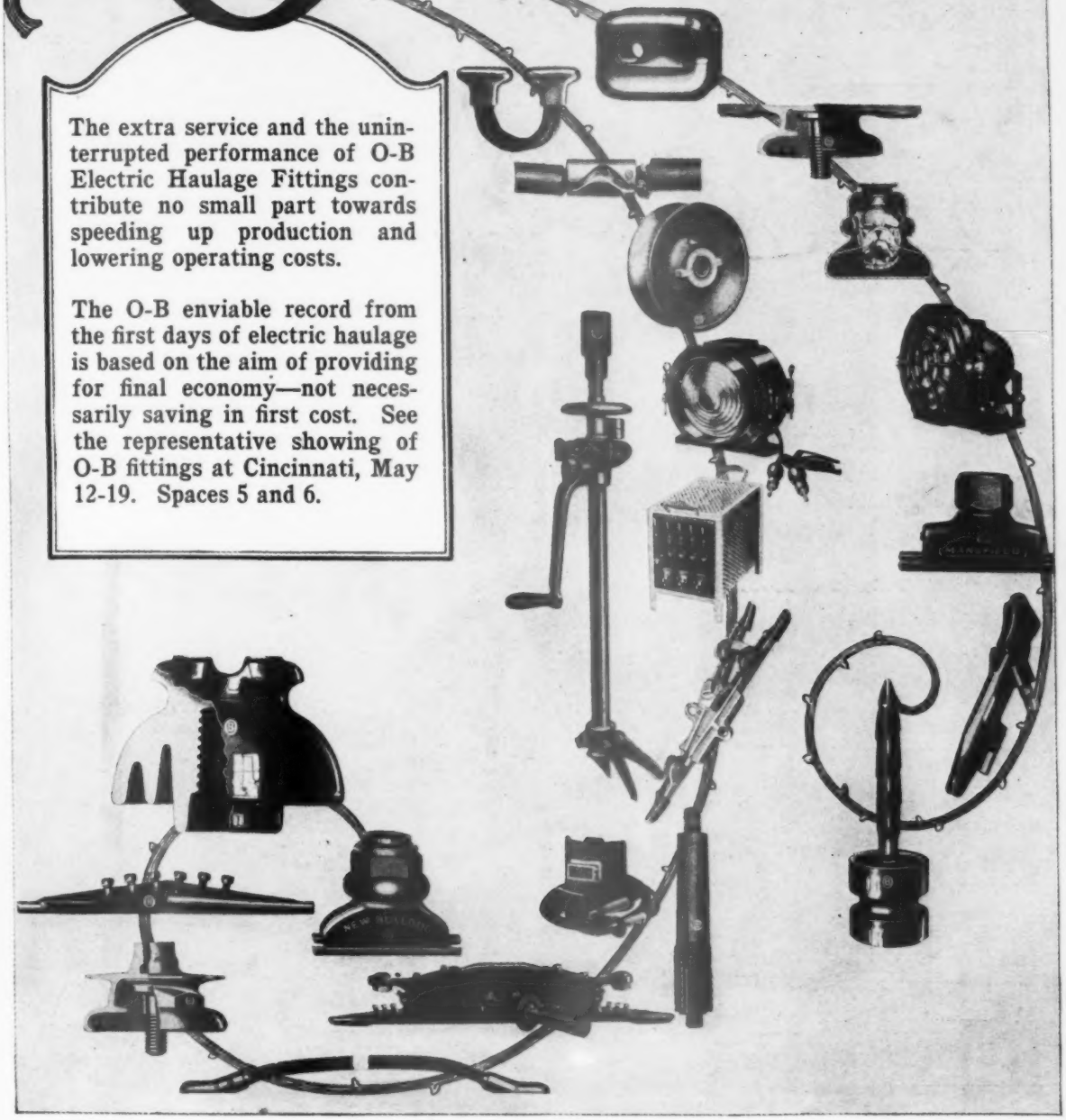

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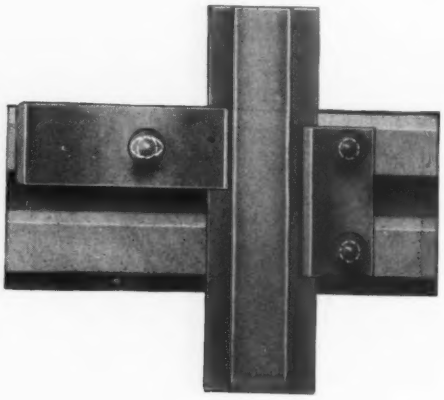

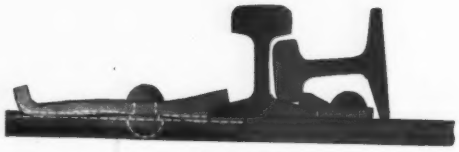

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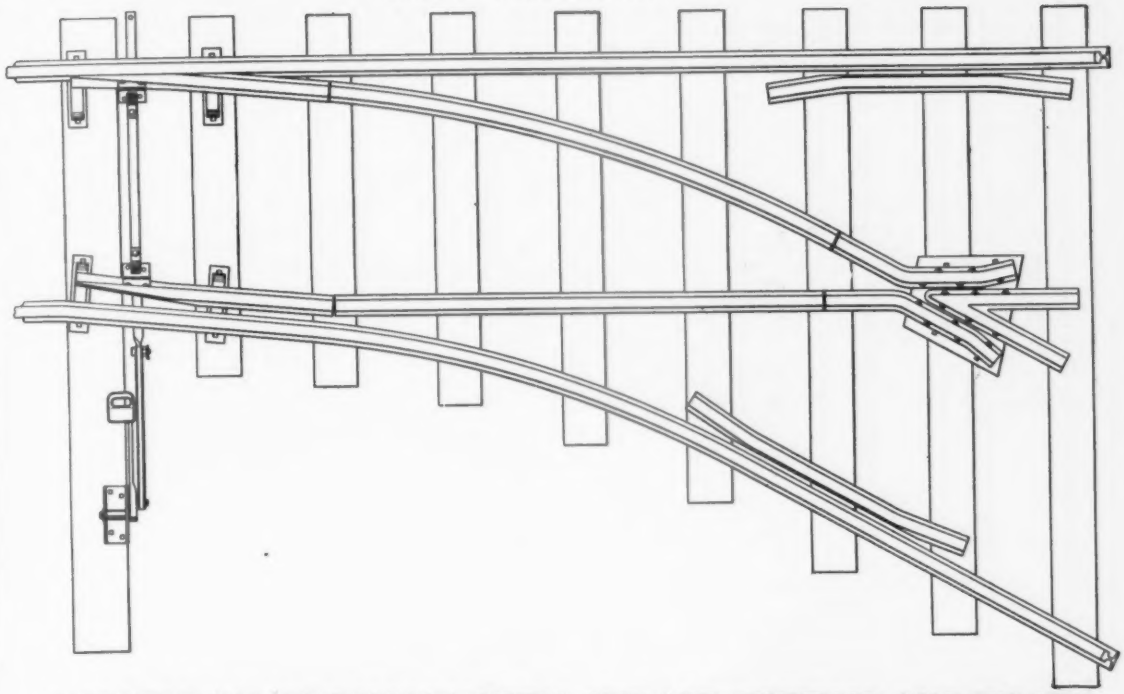

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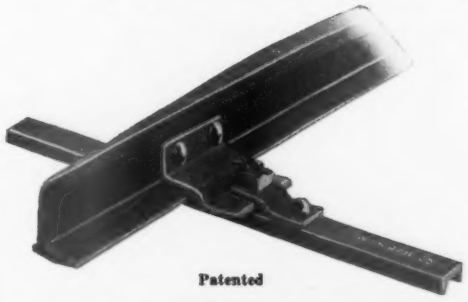

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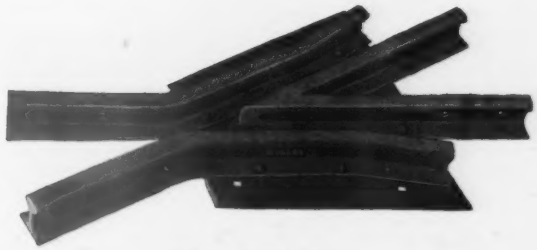

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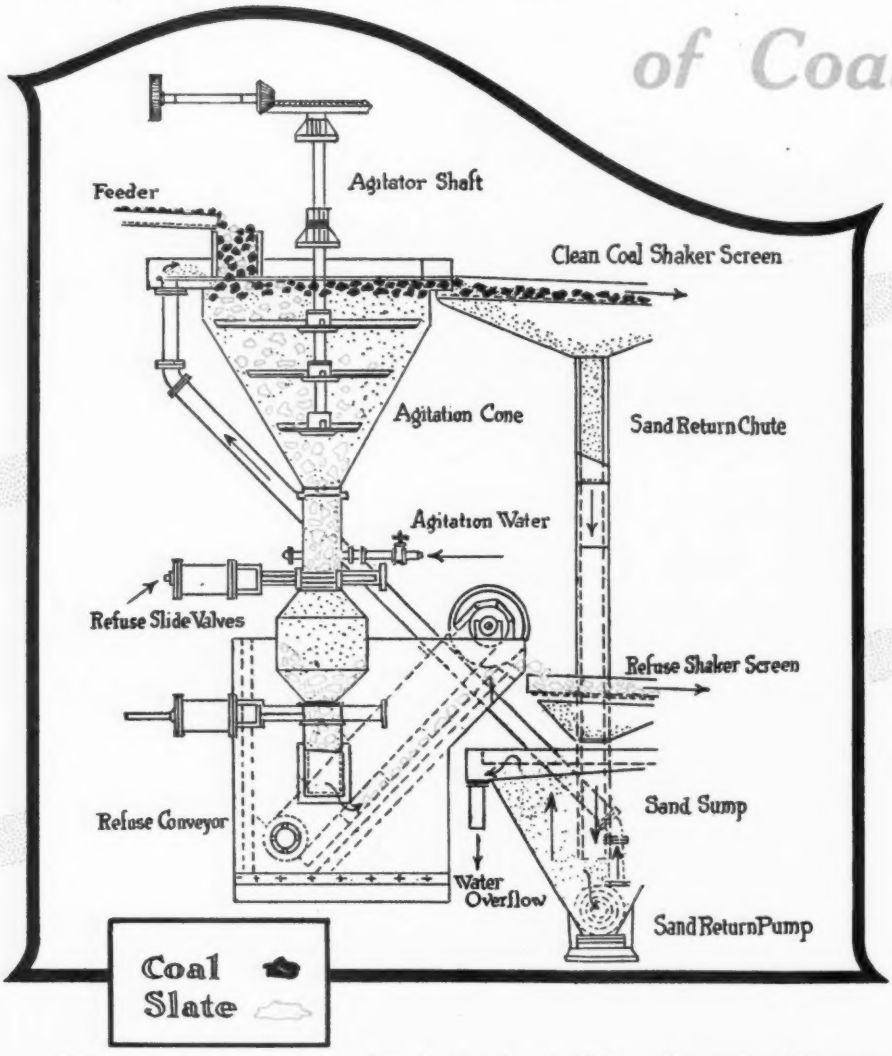
Less than 1 per cent loss of Coal



THE Chance Coal Cleaner is proving every day by actual operation throughout the Anthracite region, its superiority over the jig method of separating coal and slate, as well as removing coal from rock. Operations now using the Chance Coal Cleaner, have a combined capacity of 1,000,000 tons annually, with the general average of less than 1 percent of coal in the rock bank.

How It Operates

You will observe by the detail illustration above, that the coal by means of a feeder, enters the agitating cone at the top where it falls into a liquid solution of sand and water, in which the slate sinks and the coal floats. The specific gravity of the sand and water mixture is an intermediate between that of coal and its accompanying impurities, which separates the slate from the pure coal.

The cleaned coal passes from the top of the agitating cone to the shaker screen, where the various sizes are screened and sent to their respective coal pockets.

The slate falls to the bottom of the cone, where operating valves release it to the refuse conveyor, and drops it on the refuse shaker screen.

The sand, which escapes with the cleaned coal is washed into the sand sump and from these pumped again into the agitating cone, for continual re-use.

The Chance Coal Cleaner minimizes breakage—sends more and cleaner coal to the pockets, and assures a far higher quality of Anthracite than can be obtained by any other method of coal separation or cleaning.

Make an appointment and let us prove every statement made, for this revolutionary method of producing more and cleaner coal. We welcome the most rigid inspection on the results obtained by the Chance Coal Cleaner.

H. M. Chance & Co.
Engineers
Drexel Building,
Philadelphia, Penn.

Chance Coal Cleaner

M. A. Walker, General Manager
Rehrig Building—Scranton, Pa.

H. O. Staples
Sole Anthracite Licensor
Mears Building,
Scranton, Penn.

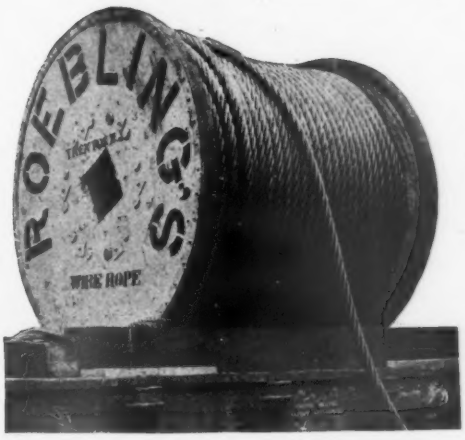
ROEBLING WIRE ROPE

FOR COAL MINING

Roebling Haulage Rope Operating Under Good Track and Roller Equipment

The chief factor in producing High-Grade Wire Rope is the complete control of all operations from the making of the steel to the finished Rope.

Every wire in Roebling Ropes is fabricated under skilled supervision and is made of a superior grade of steel produced in our own furnace.



A Copy of the Pocket Edition of Our Catalogue Will Be Sent Upon Request.

John A. Roebling's Sons Company
Trenton, N. J.

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Make every shot SURE!

You get sure-fire results with du Pont blasting accessories.

Many users of du Pont explosives have learned from experience that it pays in dollars and cents to use superior accessories in *every* blasting job. Your investment in explosives and labor is too great to jeopardize with any but the best accessories, particularly since their cost is comparatively small.

With du Pont explosives use *only* accessories bearing the du Pont Oval. Then you'll get the results you're after.

Back of du Pont explosives and accessories is 122 years of manufacturing experience—your assurance of highest quality.

Blasting Caps	Electric Blasting Caps
Delay Electric Blasting Caps	Fuse Delay Electric Igniters
Blasting Machines	Rheostats
Galvanometers	Cap Crimpers
Leading Wire	Tamping Bags

Write for Blasting Accessories Catalog containing descriptions and illustrations of du Pont accessories and practical information about their use

E. I. DU PONT DE NEMOURS & CO., Inc.

Explosives Department, Wilmington, Delaware

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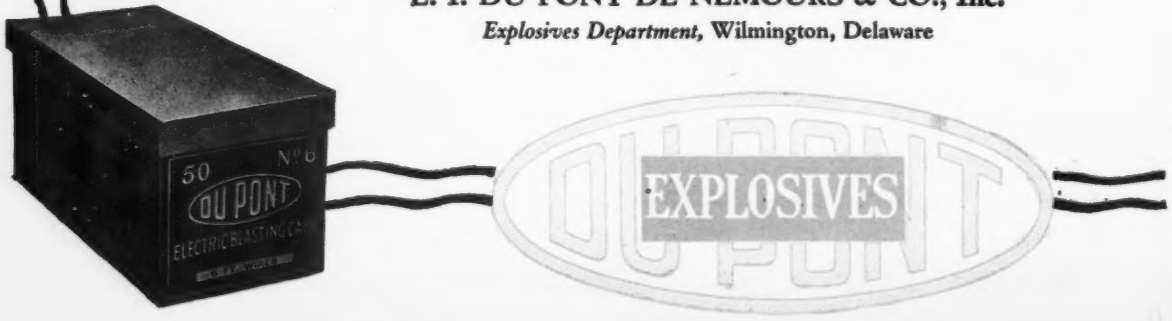
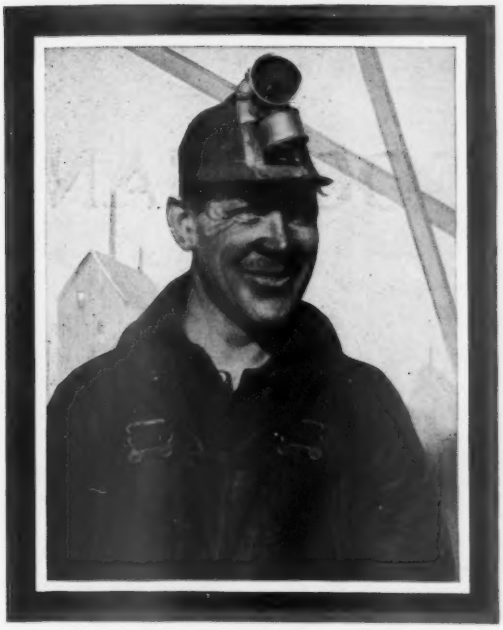
Du Pont Products Exhibit Atlantic City, N. J.



Keep Him Smiling



SHOULDERING a plain-bearing mine car into position for loading is a he-man's job. Each day this work takes the strength and energy of your men—strength and energy which could be more profitably applied to digging and loading.

It's a different story with Timken-equipped mine cars. A slight push starts the car and places it in loading position. That saves time as well as energy. As a result you get more tons per man per day. Timken Bearings in mine cars keep the men working more steadily and contentedly But this is only one of the savings Timken Bearings bring to mine operations.

Timken Bearings Reduce Car Depreciation

Timken Bearings eliminate all wear on axles and wheel-hubs—eliminate cocked and wobbly wheels. Thrust washers and the trouble that attends their use are unnecessary. Timken Bearings keep cars in service longer, with fewer repairs. All these items reduce car depreciation to the minimum.

Timken Bearings Reduce Car Maintenance

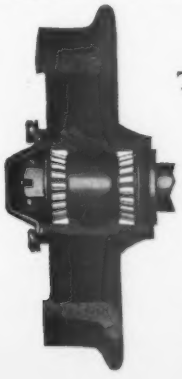
The maintenance of a fleet of cars requires not only the full time of several men, but a large stock of repair parts as well. If you could cross off your stock list all axles and wheels except those necessary to repair wrecks—and throw out all thrust washers and lynch pins, there would be a big saving not only in overhead but in the repair shop pay roll as well. And Timken-equipped mine cars will do that job for you.

Timken Bearings Reduce Lubricating Expense

With plain bearings, you must lubricate at least once a day—with Timken Tapered Roller Bearings, once a year. No longer any need for the man on the tipple who pours oil over the wheels and track. This is waste. The money saved in lubrication alone will pay for the Timken equipment.

Timken Bearings Reduce Power Costs

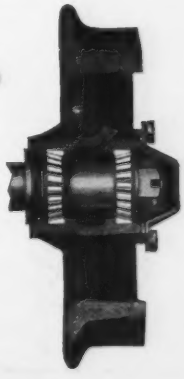
Timken Tapered Roller Bearings in mine cars permit more cars per train—in fact in many instances the same locomotive takes out twice as many tons per trip in Timken-equipped mine cars. This means a reduction of 50 to 60% per ton in power charges. Figured over the period of a year, this saving, alone, mounts up to a figure which would help justify the installation of Timken Bearings in mine cars.



Send for your copy of "Timken Bearings and Coal." It will give you the complete story of the savings Timken Bearings can effect for you.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

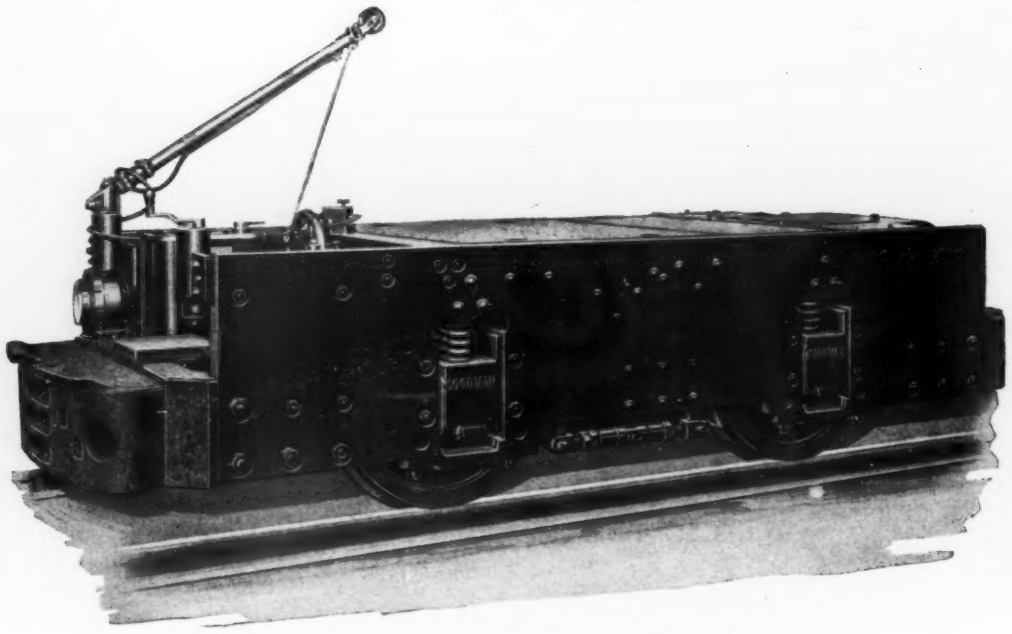
TIMKEN
Tapered
ROLLER BEARINGS



© 1924, T. R. B. Co.

For Dependability and Low Upkeep Cost—

A GOODMAN



Transverse Equalizers
Spring Bumpers
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Goodman Motors
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Accessible Parts
Years and Years of Service

Write for Goodman Locomotive Books

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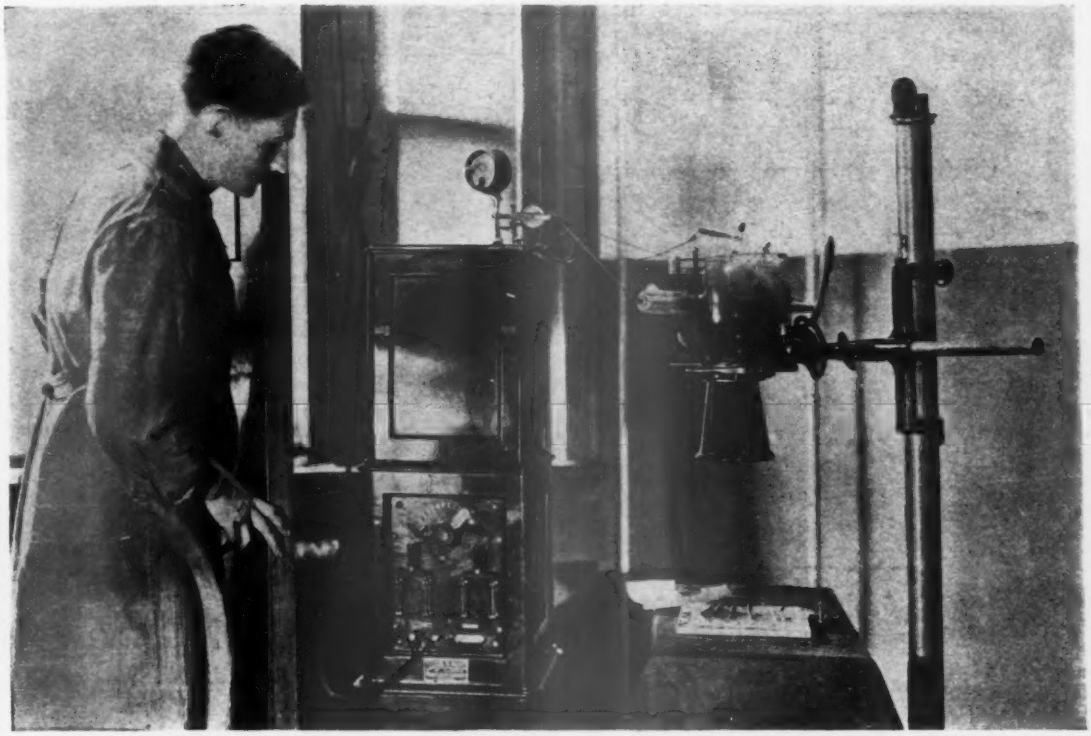


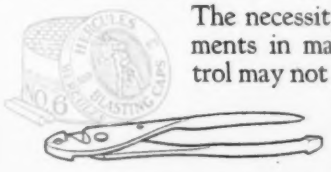
The X-ray Tells Part of the Story

BLASTING CAPS from every day's manufacture are sent to our Experimental Station for testing. They are subjected to various tests to determine different characteristics. But obviously, detonators must be shot in most tests that can be applied to them. This destroys the evidence. If we could look inside a cap, or particularly an electric blasting cap, before we shoot it, doubtful points might instantly be cleared; for mechanical construction is almost as important as chemical composition.

The X-ray can look inside. In conjunction with other tests, it helps us to keep a constant check upon the quality of our output.

The necessity for such refinements in manufacturing control may not be at once apparent to everyone; but their cost is justified many times over by our record. We have produced over 100,000,000 blasting caps without a complaint, and more than 20,000,000 electric blasting caps with only one valid complaint, involving a very small number.

Faulty detonators are costly to those who try to use them, and to those who make them. It is economy for us to take every reasonable precaution that science can devise; for in protecting our customers we are protecting ourselves.



HERCULES POWDER COMPANY

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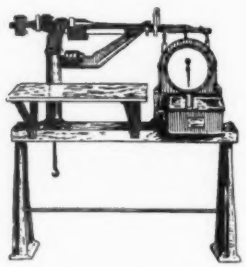
Essential to Increased Production

One step in the problem of keeping pace with the new mine production demands and mining and loading machinery is definitely realized in the Streeter-Amet Automatic Dial and Weight Recording Machines. The weighing operation is speeded, greater accuracy results and men are released for other duties; and the human element of error—the cause for dispute between miner and manager or management and railroad—is removed.



Weighs moving cars or stationary hoppers with equal accuracy.

Our descriptive folder will interest you

STREETER-AMET AUTOMATIC DIAL & WEIGHT RECORDING MACHINES

STREETER-AMET WEIGHING & RECORDING CO. CHICAGO, ILL.

Look for us in Booth 27

at the

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Robert Holmes & Bros.

DANVILLE, ILL.

COAL MINE MACHINERY

Some day you'll need this man

The Branches You Located

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WE HAVE an Oxweld Field Man available for you. His services will cost you nothing if you are a user of Oxweld equipment.

This man has had years of experience and training in oxy-acetylene welding and cutting. He is ready to advise you on any troublesome job. He will help you train your operators, point out new methods, and increase your efficiency. He will inspect your Oxweld apparatus and supervise minor repairs.

Some day you will need an Oxweld Field Man. When you do, simply telephone or wire the nearest of our 35 branch offices.

If you are a user of Oxweld equipment and need the help of an Oxweld Utilityman, telephone or wire the nearest of our 35 branch offices. If you are not an Oxweld user, send for our booklet, "Oxweld Can Do It," or better still, see our exhibit and talk to our engineers at the Show—Space No. 40.

OXWELD ACETYLENE COMPANY

Chicago	Long Island City, N.Y.	San Francisco
3642 Jasper Place	Thompson Ave. & Orton St.	1050 Mission Street

Oxweld

WELDING AND CUTTING APPARATUS

WORLD'S LARGEST MANUFACTURERS OF WELDING AND CUTTING EQUIPMENT

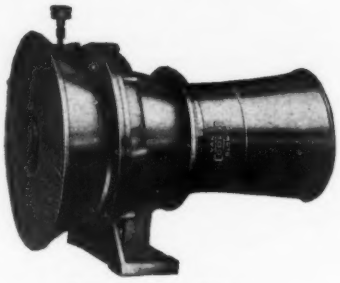
REGISTERED COPPUS U.S. PAT. OFFICE

VANO BLOWERS
FOR AUXILIARY MINE VENTILATION

Electric Motor Driven VANO Blower

As with every propeller blower, the air leaves the blower in the same direction as it enters, namely parallel to the axis. This feature and the compactness of design make them readily adaptable for installation in pipe lines.

Deliver far more air than fans of any other design of the same diameter. As high speed machines with efficiences up to 80 per cent, they require small driving units resulting in compactness and light weight, very desirable features for temporary or portable installations.



Compressed Air Driven VANO Blower

The most remarkable characteristic is the constant power consumption at constant speed, irrespective of variation in pressure and air delivery. This prevents overloading and burning out of motors, thus eliminating the possibility of mine fires, in case, for instance, the air pipe should be accidentally torn off the blower.

See Our Exhibit Space No. 31

COPPUS ENGINEERING CORPORATION

351 Park Ave., Worcester, Mass.

Let us explain to you how

"SUPERIOR" MINING MACHINE BITS, BIT STEEL *and* "SUPERIOR" MINE CAR COUPLINGS

can save you money

PITTSBURGH KNIFE & FORGE COMPANY

CORAOPOLIS, PENNSYLVANIA

Booth 111---National Convention

The Development of the Rotary Car-Dumper

The diagram shows that giving

Higher Values at Lower Prices

through a period better known for **Lower Values** and **Higher Prices** has greatly broadened the application of the

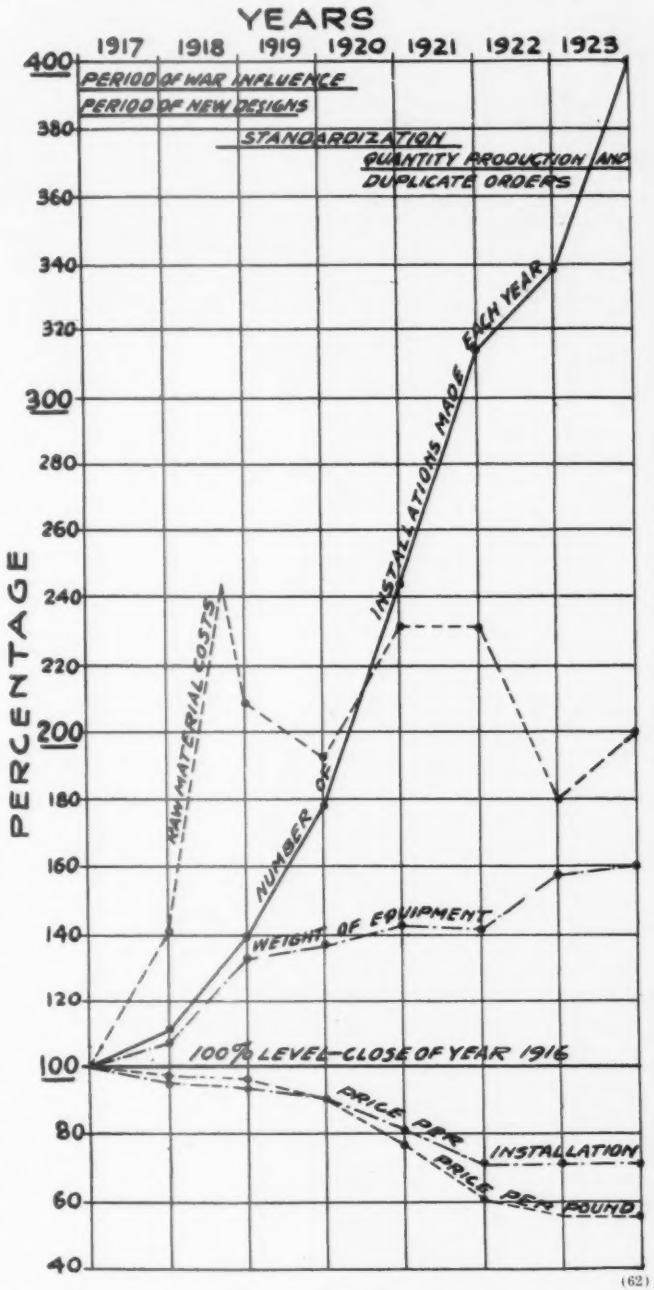
Rotary Car-Dumper

The steep rise of the line for "Number of Installations Made Each Year" tells how rapidly the Rotary Car-Dumper is being adopted.

From the Period of Experimentation — the "Period of New Designs" for nearly all installations—through the process of "Standardization," to the present time of "Quantity Production and Duplicate Orders," there is evident a constant **increase** in "Weight of Equipment," yet an equally constant **decrease** in "Price per Installation" and in "Price per Pound."

See how our economies of production are thus passed on to our customers; and note how much "more dumper for a dollar" is now to be had.

All of which means that the well known operative economies and varied advantages of the Rotary Car-Dumper are now available to you at distinctly lower cost than ever before.



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ROTARY CAR-DUMPERS FOR MINE CARS (GRAVITY, ELECTRICAL OR PNEUMATIC DRIVE)

"SOLIDCAR" SELF-DUMPING CAGES
CAR CONTROL AND CAGING EQUIPMENT

GRAND CROSSING
CHICAGO
ILL.

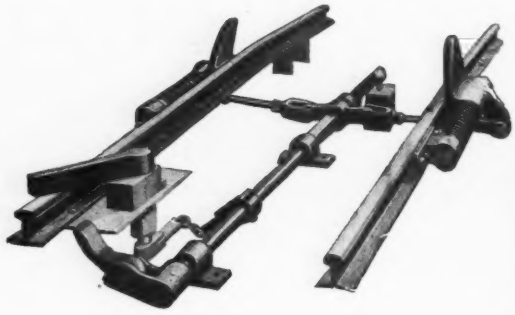
CAR-DUMPER & EQUIPMENT CO.

WESTINGHOUSE BLDG.
PITTSBURGH
PA.

THE MECHANICAL SPRAGGER
AUTOMATIC TRIP CONTROL EQUIPMENT

ROTARY CAR-DUMPERS FOR
STANDARD GAUGE RAILROAD CARS

SEE OUR EXHIBIT AT CINCINNATI, MAY 12th to 17th—SPACE No. 35



This is the

NOLAN

Automatic Cager

on exhibition at

BOOTH No. 2

Coal Equipment Exposition

Music Hall, Cincinnati, Ohio

It is this machine which is saving the labor of two men at many mines near you.

We invite you to see it operate. Mr. Nolan will be there to tell how it may be adapted to the conditions at your mine so that you may not only save in labor, but increase your tonnage.

THE MINING SAFETY DEVICE COMPANY

BOWERSTON, OHIO

Representatives

T. H. Edelblute Co., Pittsburgh, Pa.
Huntington Supply & Equipment Co.
O. H. Davidson Co., Denver

Blasting supplies that insure better work

ATLAS Blasting Supplies in themselves are the highest quality products that it is possible to manufacture. Nothing but the highest quality material obtainable is used in their manufacture. Every operation in their making is performed with the utmost skill and care and each step in the process of manufacture is inspected most rigidly. Hence, the use of Atlas Blasting Supplies is certain to result in *better* work.

No matter what the blasting operation may be there is an Atlas product especially suited to the requirements of the work. Let the Atlas Service Man help you to determine the right Atlas Product for your work. Write nearest branch.

ATLAS

Blasting Supplies

Always **Dependable**

ATLAS POWDER COMPANY

WILMINGTON, DELAWARE

Branch Offices:

Allentown, Pa.; Birmingham, Ala.; Boston, Mass.; Charleston, W. Va.; Chicago, Ill.; Des Moines, Iowa; Houghton, Mich.; Joplin, Mo.; Kansas City, Mo.; Knoxville, Tenn.; McAlester, Okla.; New Orleans, La.; New York City, N. Y.; Norristown, Pa.; Philadelphia, Pa.; Pittsburg, Kans.; Pittsburgh, Pa.; Pottsville, Pa.; St. Louis, Mo.; Wilkes-Barre, Pa.

HOFFMANN PRECISION ROLLER BEARINGS

For Heavy Loads and Hard Service

Heavy-duty units manufactured to unequalled standards of precision; affording the maximum of serviceability under conditions involving heavy loads, temporary overloads, shock, jar and vibration; offering to manufacturers and users of mining and milling machinery new opportunities for power saving, reduced upkeep costs, and better service.

Our engineers will welcome an opportunity to work with yours, in applying these high-duty, high-precision bearings to your heavy-duty machinery, with a view to securing maximum anti-friction efficiency, minimum maintenance costs, and continuity of service.

THE NORMA COMPANY OF AMERICA
Anable Avenue
Long Island City New York
MAKERS OF "NORMA" PRECISION BALL BEARINGS

STANDARD and SELF-ALIGNING TYPES

81

See you at Cincinnati-National Exposition of Coal Mining Equipment and Machinery. Don't forget our booth - #81.

WE WILL HAVE ON EXHIBITION--

A LOW TYPE COMPOSITE MINE CAR EQUIPPED WITH WATT-HYATT ROLLER BEARING TRUCKS—STEEL BRAKE BANDS WITH WHEELS HOUSED IN BOTTOM. (THIS CAR IS ONE OF A FLEET OF 600 WE ARE BUILDING FOR ISLAND CREEK COAL CO.)

—DIFFERENT TYPES OF TRUCKS—

DON'T FAIL TO SEE THE DEMONSTRATION OF THE

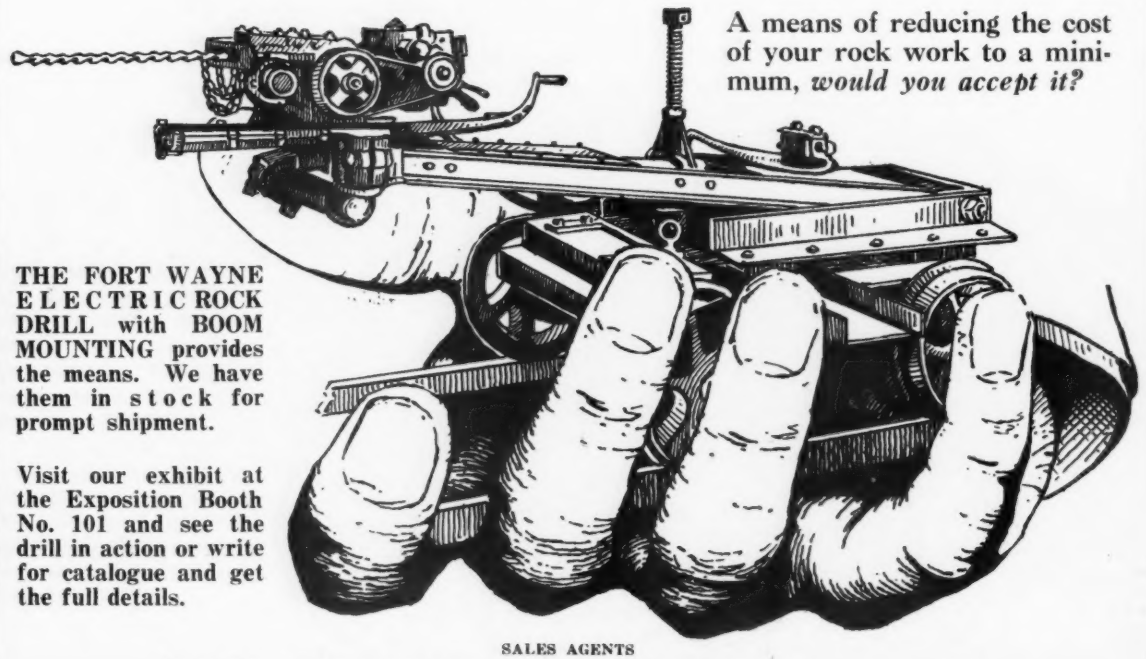
- BULLDOG AUTOMATIC COUPLER -

SOMETHING NEW

The Watt Mining Car Wheel Co.

BOOTH 81 Barnesville, Ohio BOOTH 81

IF YOU WERE HANDED



A means of reducing the cost of your rock work to a minimum, *would you accept it?*

THE FORT WAYNE ELECTRIC ROCK DRILL with BOOM MOUNTING provides the means. We have them in stock for prompt shipment.

Visit our exhibit at the Exposition Booth No. 101 and see the drill in action or write for catalogue and get the full details.

SALES AGENTS

Cooke-Wilson Electric Supply Co., Pittsburgh Pa., Charleston, W. Va., Athens, Ohio
Scranton Electric Construction Co., Scranton, Pa. Keiser-Geismer Engineering Co., Birmingham, Ala.

With this a Miner can Rescue HIMSELF!

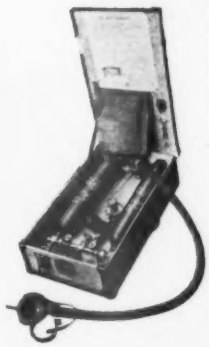
Recently Awarded the Bureau of Mines Approval

The M-S-A Self-Rescuer

Mine explosion fatalities would be reduced about 50 per cent were miners able to pass safely through "after damp" which contains poisonous carbon monoxide.

THE SELF-RESCUER PROTECTS AGAINST CARBON MONOXIDE—IT WILL LET THE MINER GET TO FRESH AIR!

EVERYTHING FOR MINE SAFETY
On Display at the
AMERICAN MINING CONGRESS



H-H INHALATOR
A new principle of Resuscitation

A victim of asphyxiation, smoke, or suffocation will respond promptly to this treatment.

Approved by the American Gas Association

BURRELL ALL-SERVICE GAS MASK

Gives protection against ALL GASES, smokes of fumes. The only mask that protects against "after damp."

GIBBS OXYGEN BREATHING APPARATUS
In use by hundreds of mines throughout the country
The Most Perfect Approximation to Normal Breathing

Mine Safety Appliances Co.
Chamber of Commerce Bl'dg. Pittsburgh, Pa.

SWEET'S STEEL MINE TIES

Increase your tonnage output by using SWEET'S Steel Ties in your mines. Coal operators who appreciate the value of laying the underground track as closely as possible to the face of the coal have been quick to adopt the SWEET'S Tie as standard.

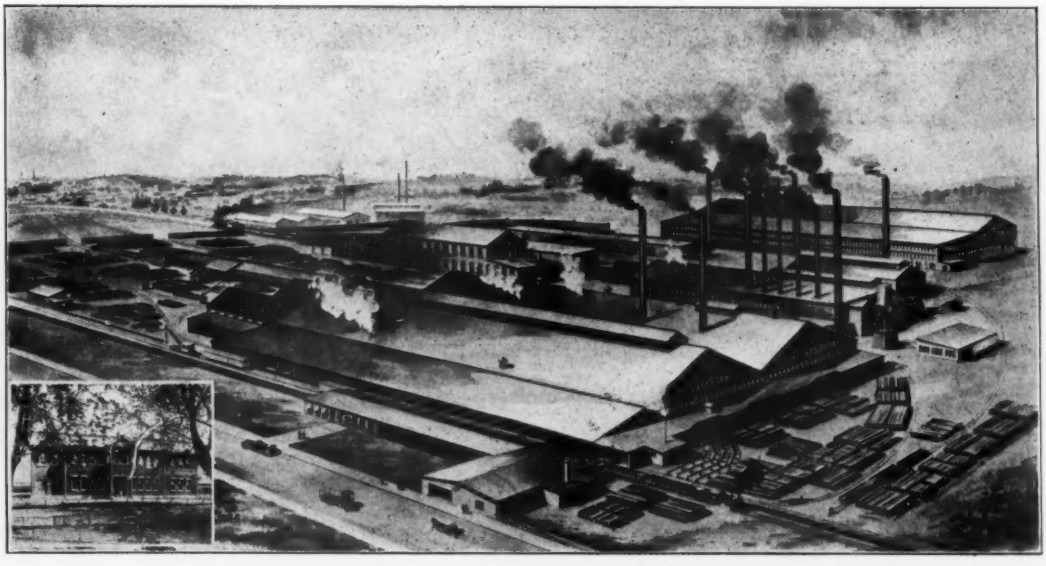
Note these advantages:

Rolled from special high carbon steel that contains from two to three times higher carbon content than steel ordinarily used for rolling ties. All the weak points have been eliminated; all the strong points have been strengthened. Hundreds of thousands of these ties are being used today with the greatest satisfaction in coal mines throughout the country.

Specify SWEET'S Mine Ties
if you want the best for your mine

SWEET'S STEEL COMPANY

Williamsport, Penna.



VIEW OF WORKS AND ADMINISTRATION BUILDING

CANTON AUTOMATIC MINE DOORS

Door Open

Open Automatically When Trip Approaches

Close Automatically After Trip Has Passed

No Lost Air

No Trip Too Fast

Requires No Trapper

Over 5,000 in Use

Can Be Bought or Leased

Door Closed

Reduce Your Operating Costs—Save Lives—
Make Low Price Coal Profitable

Canton Automatic Mine Doors require no expensive outlay like an overcast. Can be moved from one place to another with little cost. Can be installed with no interruption to operations and

One Month's Cost Is Less Than Four Days' Trapper Pay

Ask for Descriptive Catalog of Labor-Saving Devices. It means money to you.

American Mine Door Co., Canton, O.
2063 Deuber Ave., S. W.

A DOOR IN TIME MAY SAVE YOUR MINE "SAFETY"

HOW MUCH IS SAFETY WORTH?

WHICH IS THE BETTER—

To remove the man before the accident and save life and money, or—remove him after the accident and pay compensation?

THE CANTON AUTOMATIC SWITCH THROWER

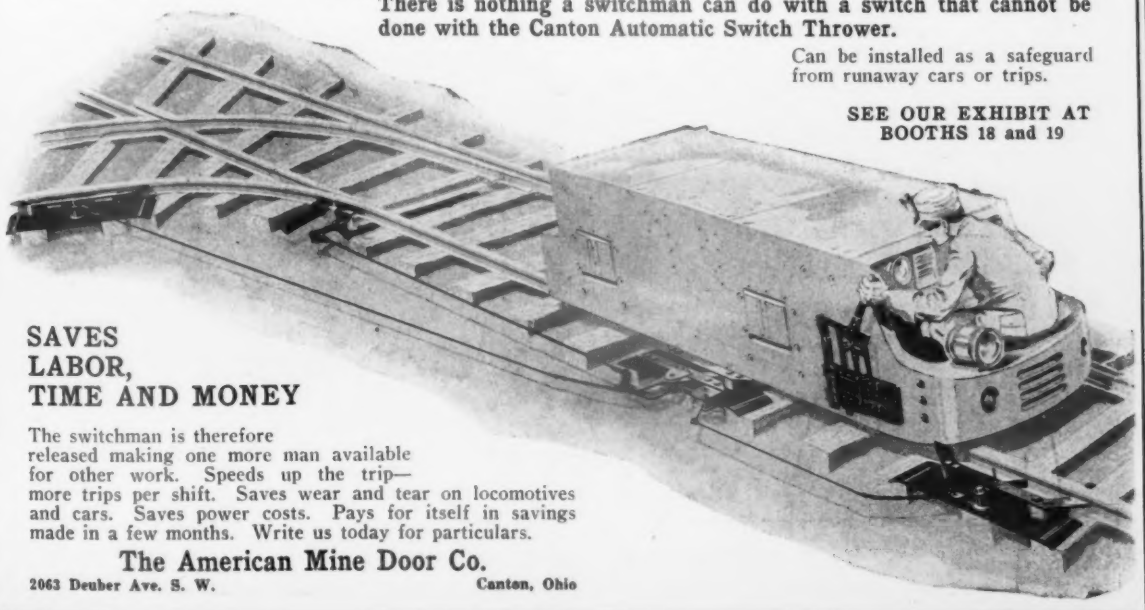
Saves Its Cost from 5 to 25 Times, Every Day Used—Invite Us to Prove It

Motorman throws the switch without having to move from his seat. He is not required to slacken speed of trip. Can make a flying switch just as easily.

There is nothing a switchman can do with a switch that cannot be done with the Canton Automatic Switch Thrower.

Can be installed as a safeguard from runaway cars or trips.

SEE OUR EXHIBIT AT BOOTHS 18 and 19



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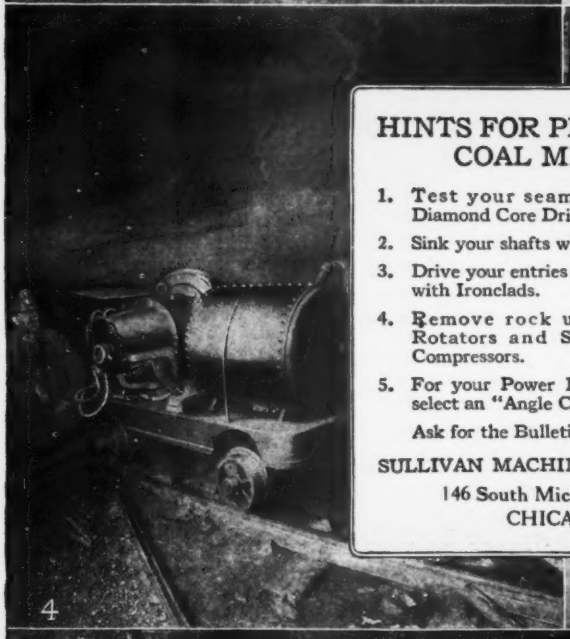
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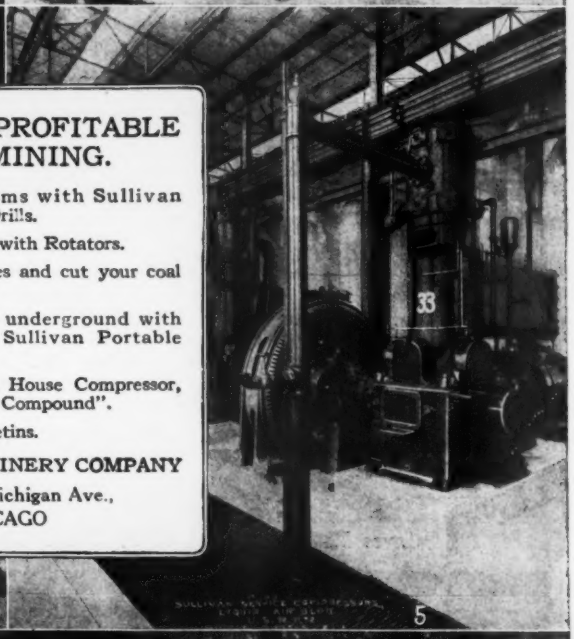

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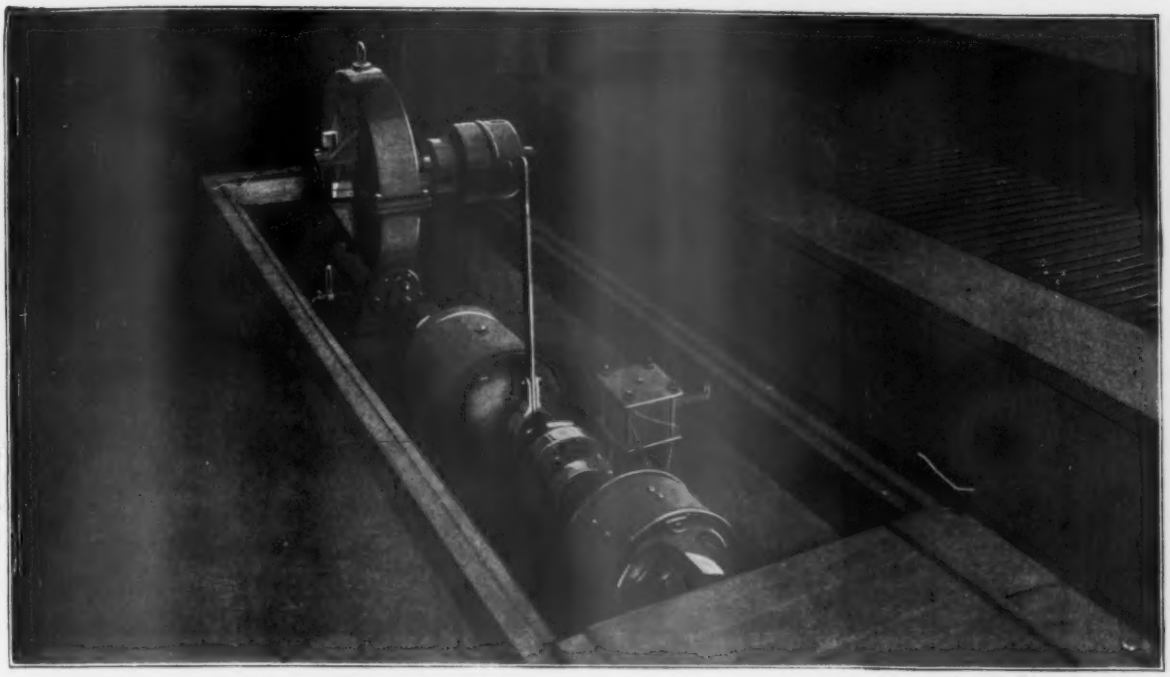

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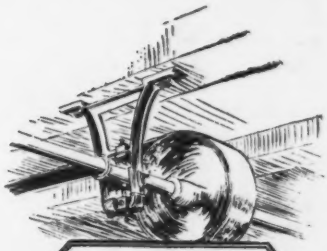

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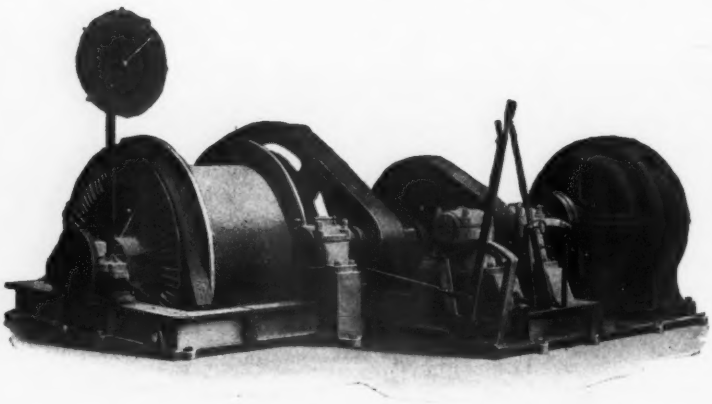

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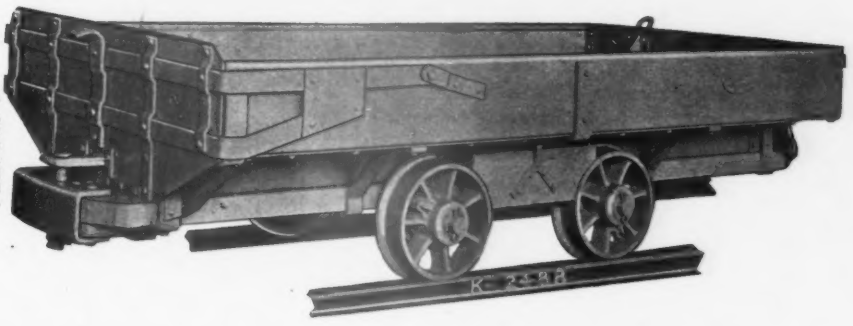

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CREATING MONOPOLIES

EFFICIENCY in coal production seems to be the present slogan as a relief from some of the ills of the coal industry. It is plain that those who are able to produce coal more cheaply than their competitors, where full transportation facilities are available, and no interference is made with continuous operation by labor troubles, will be able to control markets and operate continuously. If, however, all coal operators shall be able to reduce production costs in the same proportion, all will remain upon the same competitive basis. This cost reduction will be an advantage to the consumer of coal but will not solve the problem of the coal operator.

At the present time approximately one-third of the bituminous coal mines of the country are closed because they are not able to find a market which will cover the cost of production; another large part are working at a loss in the hope that some condition may arise which will enable them to earn a profit.

The great coal problem which called into being the United States Coal Commission was solved by the law of supply and demand but the problem of the coal industry is almost as far from settlement as it was ten years ago.

Cheap power which means cheap coal is fundamentally necessary to the industrial progress of the nation. The cheapest coal will only be produced by cooperation between the various agencies of production. The Sherman Anti-Trust Law prohibits cooperation between coal operators. It permits one agency and requires another of the three agencies which are essential to the production and distribution of coal to combine, but prohibits the operator from any semblance of combination.

The government does not permit the railroads to compete in the price charged for distributing coal. It permits the labor involved in coal mining to combine to fix its scale of wages and to effectively stop production whenever its interest, apparent or real, may so decide but it absolutely prohibits coal companies from creating mutual selling agencies through which coal can be put upon the market at a very greatly reduced price. It does not permit coal operators, with a capacity far in excess of possible consumption, to limit production to the public need but forces an operator to either go out of business altogether or else to waste his resources and his reserves in a cut-throat competition.

Under present conditions the only apparent remedy is consolidation, a remedy which tends toward monopoly, which is the very thing the Sherman Anti-Trust Law was created to prevent. In other words, the present operation of this law instead of preventing monopoly is forcibly creating monopolies from which there can be no redress.

Is it not high time that Congress created conditions under which combinations, which are for the public's benefit, shall be permitted under the control of some constructive governmental agency?

COURAGE AND OPPORTUNITY

THE huge mineral development of the United States, greater and more varied than that of any other nation, is due to one thing—courage. The courage of those pioneers in the last three decades who saw not only rich prospects with opportunity for immediate profitable operation but who saw in combination of properties and capital opportunities for vast economies of operation; men whose vision encompassed not the high grade copper of Santa Rita but the whole Chino project; men who saw below the barren intrusions far richer quartz at deeper levels than had theretofore been discovered on the Mother Lode.

The mining industry has needed all this courage in the years following the war. Abrupt economic changes, legislative restrictions without point or value, abnormally high interest rates, high production costs, have given their perplexing problems. These problems have been most serious in precious metal mining.

In the year 1915 our gold production amounted to one hundred and one million dollars. Our production during the last few years, and at the present time, is approximately half that amount. A large part of the present production comes as a by-product from mines producing copper, lead and other minerals. To the extent that costs of operation have increased since 1915 must we measure the economic pressure now burdening gold production.

The falling off of gold production during the recent years has been erroneously regarded by many as evidence of the exhaustion of western mineral resources.

The fact is that the prospector was driven from the hills by the interference of Forestry officials; that the mining industry was preyed upon by a horde of fraudulent promoters; that bureaucratic laws were passed restricting the raising of funds for legitimate development enterprises; that the relative purchasing value of gold which had been the stable output of the Rocky Mountain States so declined as to limit its production that the successful prospectors of the past had already located many more prospects than could be developed or that it was wise to develop.

Those mines which are in operation will sooner or

later have exhausted their reserves and at that time, to repeat a statement frequently made by the MINING CONGRESS JOURNAL, "the capital, the brains and the labor now engaged in the operation of those mines will be without employment," unless in the meantime new mines are developed from the thousands of promising prospects which exist everywhere throughout the West but for the development of which a sufficient inducement is not presented.

The Sacramento Convention to be held September 29 to October 4 will arrange a full discussion of all of the handicaps which now affect the mining industry, and an effort will be made to develop conditions under which not only that the western mining industry may be brought back to its old-time stage of prosperity; not only for the benefit of the West, but in order that the nation may not be hampered in its prosperity by the lack of those basic materials which industry requires.

HOW POWER GROWS

THE Emergency Fleet Corporation found itself either with too many ships or with not enough business. It couldn't sell the ships; it would increase the loss to lay them up; and, hence, it needed more business. The Merchant Marine Act of 1920 provided a simple and effective device by which business could be driven to the ships. All the Fleet Corporation had to do, under the law, was to persuade the Shipping Board to certify that American boats were adequate to carry America's foreign trade. That fact being certified to the Interstate Commerce Commission, the latter must cancel all export rates on goods moving in foreign bottoms. The export rate, almost universally, is lower than the domestic rate to the same port. Therefore, the cancellation of the export rate established a rate differential against foreign ships.

This was done and raised, at once, the whole question of our merchant marine. Particularly, it raised the question how we were to defray the extra expense of maintaining our own ships in the face of foreign competition. Are we going to compel them to compete with foreign ships; take the loss which such competition entails; and pay that loss out of taxes as a ship subsidy? If not, are we to compel the American shipper to pay rates high enough to keep the fleet going and lose a chance of doing the foreign business?

It is admitted that a loss must be sustained. The only question is whether that loss should be confined to the business moving, or whether, in broader interest, it should be spread over the whole body of taxpayers. Up to a certain point, this is an extremely broad question in political economy and, hence, decidedly a debatable issue.

Some questions of fact entered which had to be taken seriously into account. These facts are too numerous to record in the short space here available. It is enough to say that between the shippers on one side and the Fleet Corporation on the other, the big question is whether it is true that the Fleet is equipped to handle all of America's business *in the way that American business must be handled.* The resulting argument had not proceeded half an hour before one of those tangles inserted itself which is quite common when dealing with a discretionary commission. The law, unfortunately, does not compel a discretionary commission to justify its opinion. It merely says that if that commission is of an opinion—no matter how arrived at—that a state of facts exists, then its opinion shall govern. The shippers have definite knowledge that the Fleet Corporation cannot handle American business. Still, they face the stubborn fact that the Shipping Board has expressed the opposite opinion. And, from a reading of the law, it seems that the shippers have no appeal.

When affairs were in that apparently hopeless position, the Commerce Commission, responding to the mandate of the law, ordered the railways to revise their tariffs in accordance with what, technically, is known as Section 28. That brought the whole matter before the Commerce Commission, which was appealed to to suspend the application of its order. At that juncture, the oil interests, represented by Mr. Dow, proceeded with the utmost caution and discretion. Mr. Dow made it plain that he did not ask the Commerce Commission to usurp the power of the Shipping Board. All he asked was that it should suspend its order until he had time to convince the Shipping Board that it had made a mistake and to persuade it to revise its certificate.

However, some other shippers, wholly out of patience with the Shipping Board, and despairing of being able to persuade it, went boldly into the hearing room of the Commerce Commission and asked the latter body to set itself up as the appellate division of the Shipping Board.

Such an appeal might very easily inspire the ambitions of men of certain caliber on any public commission. The Commerce Commission already is sitting practically as the dictator of rail transportation and therefore, as supreme within the confines of the nation over the whole question of transportation and commerce. If it should become the appellate division of the Shipping Board, its powers would be equally extended far beyond the confines of the United States. It might become, under such an arrangement, a world power in transportation. To be invited to occupy any such a position would, naturally, appeal to the ambitions of any group of public men.

The attorney who presented this request was a young man. Moreover, he was a brilliant young man. So far as he went, he thought clearly and argued cogently. It is to be doubted, however, whether, in his limited experience, he was able to appreciate fully the character of his acts. As a matter of fact, it is just such things as this which extend and have extended the power of federal commissions. Men, faced by a temporarily distressing situation, rush to some governmental agency for relief, rather than suffer a temporary embarrassment, and rather than working things out in orderly fashion by their own efforts. Thus it is that business people, by unshouldering their temporary burdens upon a governmental commission, increase the whole power of the federal government—a fact about which they complain loudly a little later. This incident, annoying as it is proving, will prove to be worth its cost if it serves to teach the business people, concretely, how federal power grows.

BEN FRANKLIN PRUDENCE

TO an extent, Benjamin Franklin still stands in the American mind as the embodiment of American thrift and prudence. The essence of his whole philosophy of life seems to have been to work hard and to save. He was unsparing in his personal effort to make his business prosper. He considered it close to a sin to indulge in any extravagance. In the parlance of to-day, he was tight—close-fisted. To use the language of the street, he squeezed the dollar until the eagle squealed. Whenever our industry gets into a tight position, it revives memories of Franklin and tries to practice what he preached.

However, there is another phase of the Franklin policy which is quite as much overlooked as his thrift is

remembered. Franklin was as thrifty with his time as he was with his money. Nevertheless, he was unsparing with his time when it was necessary to promote the interests of good government. Ordinarily, he worked in his print shop until eleven or twelve o'clock at night. However, it was not unusual for him to take several nights a week or days and weeks of his time to devote to the interest of good government. His theory was that business efforts are wasted if those efforts are nullified by the actions of a bad government. It does no good to pile up money if an extravagant government commandeers and wastes it.

Also, Franklin had another idea. He took part of his precious time and devoted it to the organization of the Junta, and caused the Junta to become the collector of books of value, and the books thus collected became the foundation of the whole library system of America. Franklin's theory was that business efforts are, in part, wasted, unless they are directed to an intelligent people.

Franklin, therefore, was willing to devote part of his time to the education of the public, that thereby the resistance to his business effort might be broken down.

These interpretations of the policy of Benjamin Franklin have a particular and peculiar application to the present status of the coal industry. It, unfortunately, is passing through a stage of enforced liquidation. During the last eight years it has accumulated many companies and perhaps some few institutions which are wholly unnecessary. That is, they are unnecessary in the sense that they are not performing a real function well. The resultant liquidation is necessary, of course. However, the pruning must be done with extreme care and rare intelligence, if the results are not to be disastrous.

No arbitrary decision can be made as to what mines are or are not necessary. Each one must prove for itself whether it has or has not a place in our economic system. And, we venture to believe that the ultimate decision will be made in favor of those who work hard and avoid extravagance.

When it comes to liquidation of the institutions, the decision must be made along the same lines that Franklin laid down one hundred and fifty years ago. The coal industry must have a decent government under which to do business, or its commercial efforts are in vain. Those institutions, therefore, which are laboring for a good government and which are applying intelligent methods to the acquirement of a good government must, necessarily, be preserved.

As we see it, there are two lines of decision for the coal industry to make; one is with respect to business organizations themselves. The essential question there is whether they are economically administered. The other decision is with respect to institutions, and the question there is whether they are working intelligently for a good and clean government, under which to do business. We venture to believe that only by the preservation of the economically sound business units and the politically sound institutions, will the coal industry emerge from its present liquidation in a safe position as far as the future is concerned.

THESE PRYING TIMES

CONGRESSIONAL investigation of executive activities began in an orderly enough fashion some months ago. But the Senate, to which we have always looked as the steady old wheel horse of the Congressional team, evidently heard the distant drums of the approaching campaign, reared up and snorted and off they went, as may well be said in the present instance, "Hell bent for election." At every rough spot in the road some already terrified passenger has been bumped off the political bandwagon bag and baggage, often as greatly to the surprise of the drivers as to the victim. When President Coolidge stepped to the center of the road and brought the runaway to its haunches with the stiffest jerk on the reins the Senate has felt in many years, there was universal public approval. American sense of fair play does not long relish character assassination, especially by characterless witnesses. Public service should hereafter be listed among extra hazardous occupations with special insurance therefor. A policy might be provided that would insure on a sliding scale of indemnity, a small amount for the mere mention of a name before an investigating committee, a large amount if mentioned by a female witness, and a double indemnity for total loss of character.

It is the present hope of the public that the fever of inquisition is subsiding.

NEGLECTED OPPORTUNITIES

WITH evidences accumulating that our natural resources are almost sure to play a prominent part in the impending campaign, attention is directed, forcefully, to the failure of the business people to meet this issue when it was still young. That is, almost any child can capture a lion cub but it requires a high-powered rifle in the hands of a skillful man or a whole company of shrewd men to destroy a full grown lion at large in a jungle.

The "oil question," for example, has been before the American people for the last twenty-five years. It would be going too much into detail to suggest how that issue might have been met at its inception. It is enough to say that that industry waited for over twenty years to form an effective organization with which to resist the attacks of its traducers. It has been less than five years since the oil industry began, even, to remove resistance from the path of sales. It is not, as yet, apparent that this industry is definitely organized to resist unsound propaganda against itself.

The case of the coal industry is far more clear. In the fall of 1917, there was introduced into government the notion that we should neglect and ignore that solution of the "coal problem" which came through adequate production and transportation and to center the national thought upon an artificial scheme for distributing equitably an inadequate supply. The whole idea was unsound from the beginning. Every man in the coal industry knew that it was unsound. It pretended to build up a chain of artificial conditions which must lead to a wholly artificial price. That is, there was to be an artificial curtailment of production, supported by an artificial restriction of transportation. This would result in an artificial shortage of coal. To match that, there must be artificial distribution; artificial price fixing; and artificial storage. It was definitely proposed that we should set aside the natural laws of trade and substitute a whole system of federal regulation. It was that scheme which the coal industry knew to be unsound.

However, opportunity presented itself time after time for the termination of this unsound thought. Each time, the coal industry postponed action. That is to say, the Fuel Administration was, perhaps, a wise instrumentality to use during the war. We do not affirm it; we merely say that, *perhaps*, it was all right. However, it existed solely as a part of our war machinery and should have ended with the war.

When that machine was reconstructed to serve dur-

ing the miners' strike of 1919, the coal men had an opportunity to end the extension of the war machinery into times of peace. At that time, the operators should have carried the whole matter to the Supreme Court. They neglected to do so; they postponed action.

In the summer of 1920, the Commerce Commission undertook to regulate the coal industry through the issuance of "service orders." That presented another extension of the war machinery into peace times. The coal industry might then have ended the whole scheme by carrying the question to the Supreme Court. Again, they postponed action.

In the summer of 1922, there was a return of artificial price control and distribution—the same old war thought. Again, the operators had an opportunity to free themselves from this burden and postponed action.

As a result of coal's inaction in the summer of 1922, the Coal Commission was appointed. The powers which Congress assumed to extend to it were clearly those which the Congress, itself, does not possess—the right to go into private books and papers for information to spread, without public purpose, upon the public records. Here again the operators postponed action.

It is highly significant that with each extension of artifice into the affairs of the coal industry, there grew up an increasing number of unnecessary mines and institutions. And, it is important that the effort at liquidation today—an effort that is all but involving the industry in wholesale insolvency—is directed at the removal of those very unnecessary mines and institutions which were invited into the industry by these artificial restraints.

If it were possible to calculate the cost of this inaction, at opportune times, the industry would be staggered by the total. It would have to compute the cost of complying with orders for artificial restraint. It would have to add to that amazing total the present cost of getting rid of the whole chain of unnecessary mines and institutions.

The total cost is not yet paid. This summer, unless all signs fail, the control of natural resources will be a great question in the campaign. The oil and the coal industries will, then, have to resist finally the efforts which they should have stopped years ago. They will be forced to fight a lion when they might, easily, have captured the cub.

KILLING THE GOOSE

"A MINE is a hole where fools dump their money." This saying appears in a pamphlet which recently was given wide circulation by the Treasury Department in an effort to create a public demand for Treasury savings certificates. It is entirely proper that the department should issue warnings against get-rich-quick schemers, unscrupulous promoters and glib-tongued confidence men, if in so doing care is exercised not to injure or destroy the means of financing the legitimate speculative ventures which in the past have contributed largely to the growth of the mining industry and the development of the country's mineral resources.

According to the department, mining is a very expensive undertaking which none but the rich can afford to trifle with. "There are many good mining and oil investments," says the pamphlet, "but how can you tell the good from the bad?" Investors therefore are urged to put their money into bonds of the federal, state and local governments, railroad and public utility corporations and like securities, and are advised not to risk their money in new ventures.

Suppose a prospector finds a promising mining prospect and is unable to secure funds for its development from the investment bankers without presenting them with a bonus of 51 percent interest in the venture. His only alternative is to raise funds by selling stock to the public. Some of the largest mines in the country have been financed in this way and small investors who speculated with the prospector have become wealthy. Most of the men who are leaders in the mining industry today were once men of moderate means. Their initiative, their courage, their speculations, and their patience made possible their success. Their savings were put into "holes where fools dump their money."

The mining industry is a great basic industry. Its products are absolute necessities of modern civilization. Mining investments involve no greater risks than those involved in many other lines of industry. The prosperity of the mining industry is vital to the welfare of the nation. Its development should not be deterred or its credit depressed. The Treasury Department, in promoting the sale of government securities and in attempting to thwart the schemes of the unscrupulous, should not issue warnings in language which will destroy mining undertakings which are lawfully conceived and legitimately promoted.

THOSE HELPFUL INVESTIGATIONS

THE fear that the numerous Congressional investigations now in progress would have a depressing effect upon the nation's business, is being dissolved by the realization that these investigations may prove exceedingly beneficial. While the Senators and Representatives who comprise the various investigating committees are busy probing into the affairs of government departments and into a variety of other matters of political significance, the danger of any radical legislation during this session of Congress is steadily disappearing. The time of adjournment of this Congress is rapidly approaching.

If the investigations last long enough, it will be impossible for the 68th Congress to tamper with the transportation act, enact "blue-sky" laws, create a new governmental agency to deal with and regulate the already over-regulated coal industry, curtail the powers of and hog-tie the Supreme Court by giving Congress power to override that court's decisions, and otherwise disturb the established institutions and principles around which our nation has grown so tremendously in importance as a world power and as a government of, by and for the people.

The investigations thus far have disclosed nothing of great national importance nor anything that reflects discredit upon the efficiency of the government, the integrity of its officials, or the principles for which the great political parties stand. As this fact becomes more apparent to the general public, confidence in our form of government and in the integrity of its officials will be stronger than ever before. The present investigations will prove that graft and crookedness do not and cannot exist where a system of checks and balances, such as that established under the Constitution, is maintained and supported.

Carl Scholz

Hugh Shirkie

J. G. Bradley

NATIONAL COAL EQUIPMENT EXPOSITION

National Coal Week To Be Celebrated In Cincinnati, Week May 12th. President Coolidge May Address Meeting Over Radio—Practical Program Operating Probblems To Be Discussed—One Hundred And Twenty-Five Exhibits By Coal Equipment Manufacturers—Epoch-Making Event In History Of Coal

THE two great organizations representing the coal mining industry—the National Coal Association and the American Mining Congress—for the first time in the history of the industry are holding simultaneous meetings that are the most important and significant ever held in the coal mining industry. It is believed that these two meetings will bring together at Cincinnati during the week of May 12, representatives of every coal mining district and the largest and most representative group of delegates this industry has ever assembled. The primary purpose of the convention is the development of greater efficiency in the production and distribution of coal and a closer cooperation between the coal producer and the general public.

The coal industry is face to face with the most bitter contest of its history. Operators are everywhere inquiring, "How can we sell more coal?" Only those companies that utilize the utmost economy and efficiency in operation can hope to survive the conditions which are the aftermath of the signing of the wage scale at Jacksonville.

The American Mining Congress, hoping to render a substantial service to the coal mine operator, is staging at Cincinnati, Ohio, during the week of May 12, a National Exposition of Coal Mining Equipment. This exposition is held in conjunction with the Seventh Annual Convention of the National Coal Association which convenes in Cincinnati at the same time. A program of practical operating problems has been prepared as an ally of the exposition, combining a discussion of practical problems, with actual demonstration of the equipment designed to meet those problems. These discussions in no way conflict with the program of the National Coal Association, whose sessions will be held in the mornings and the discussions of practical problems will take place in the afternoons and evenings. The subjects to be discussed include problems of the mine electrical men, recent developments in equipment for preparation of coal, how to increase the percentage of lump coal by better blasting methods, correlation of mechanical loading and haulage and mining systems, and necessity for rock dusting. The discussions will take place in the hall immediately adjoining the exposition auditorium and will give the operators in attendance a splendid opportunity to tie in the discussions with practical operating exhibits.

Mr. Ralph C. Becker, chairman of the Program Committee, has arranged a program which is believed will be to the material advantage of operators and manufacturers. After discussions with a large number of coal operators, it was decided that the outstanding problem of the coal mining industry today is to secure lower cost per ton of coal. It is recognized that the continued existence of many individual coal mining enterprises is largely dependent upon the successful solution of this problem.

Elaborate plans are under way for the formal opening of the exposition. An invitation has been extended to President Coolidge to address this opening session over the radio in a ten-minute talk on the relation of coal to national prosperity. An invitation also has been extended to former United States Senator Atlee Pomerene to address the delegates on the subject of the relation of government to industry.

The exposition will be formally opened by the Mayor of Cincinnati and an address of welcome delivered by the President of the Cincinnati Chamber of Commerce. The Cincinnati local committee, headed by Col. E. O. Dana, of the Campbell's Creek Coal Company, as chairman, and James C. Layne, of

D. B. Wentz

A. J. Nason

the Eaton-Rhodes Company, as secretary, are arranging several interesting entertainment features, among which is included a barbecue and a boat ride and dance. Cincinnati, notoriously a splendid host, is enthusiastic over the opportunity to entertain this great body

N. S. Greensfelder, Chairman

Manufacturers Division, American Mining Congress, who will lead the discussion on Better Blasting Methods, at the Exposition of Coal Equipment.

of men, and everyone is assured a good time in addition to the opportunities offered to investigate the possibilities of "Lower Cost Per Ton of Coal." Invitations have been extended by the American Mining Congress to approximately 10,000 coal operators to attend the sessions of the discussions of practical coal problems and view the exhibits of machinery.

The following program has been announced by the Program Committee, Ralph C. Becker, Keystone Consolidated Publishing Company, chairman; H. F. Reck, Streeter-Amet Automatic Weighing and Recording Machine Company, and Alphonse F. Brosky, Coal Age, vice chairmen:

(There will be no prepared papers. All notes will be delivered without the aid of manuscripts. Each discussion from the floor is limited to three minutes for each individual.)

Program

Monday, May 12

7:30 P. M. Music Hall Auditorium, Cincinnati, Ohio

Formal opening ceremonies and address of welcome for the National Exposition of Coal Mining Equipment and Machinery.

Tuesday, May 13

10:00 A. M. Music Hall Auditorium.

Subject: Problems Of Mine Electrical Men

Chairman: Graham Bright, Consulting Electrical Engineer.

PROBLEM I.—Storage Batteries on Cutting Machines and Main-Line Locomotives.

Comments by R. L. Kingsland, Superintendent of Power and Mechanical Department, The Consolidation Coal Co. 10:00-10:10

General Discussion 10:10-10:20

PROBLEM II.—Advantages of Multiple-Speed Fan Motors.

Comments by A. B. Kiser, Electrical Engineer, Pittsburgh Coal Co.... 10:20-10:30

General Discussion 10:30-10:40

PROBLEM III.—Savings in Power and Maintenance by Better Voltage Regulation.

Comments by Carl Lee, Electrical Engineer, Peabody Coal Co..... 10:40-10:50

General Discussion 10:50-11:00

PROBLEM IV.—Economy of Equipment Standardization.

Comments by J. H. Edwards, Electrical Engineer, Elkhorn Piney Coal Mining Co..... 11:00-11:10

General Discussion 11:10-11:20

PROBLEM V.—Inspection of Electrical Equipment.

Comments by C. L. Harrod, Electrical Engineer, Indiana Coal Operators' Power Association.... 11:20-11:30

General Discussion..... 11:30-11:40

PROBLEM VI.—Testing of Electrical tages.
Equipment.

Comments by J. F. MacWilliams, Electrical Engineer, Pennsylvania Coal & Coke Corporation 11:40-11:50

General Discussion 11:50-12:00

1:30 p. m. Music Hall Auditorium.

Subject: Recent Developments In Equipment For Preparation Of Coal

Chairman: Col. Warren R. Roberts, president, Roberts & Schaefer Co.

1. The New Dry Cleaning Process: Present Development and Advan-

Comments by Humphrey D. Smith, general superintendent, American Coal Co. 1:30- 1:45

General discussion 1:45- 2:10

2. Primary vs. Secondary Preparation: viz., Preparation in the Tipple vs. Preparation by Supplemental Equipment, Including the Best Equipment for each Process.

Comments by Hugh Shirkie, president, Shirkie Coal Co..... 2:10- 2:25

General discussion 2:25- 2:50

3. Most Modern Equipment for Loading Each Size of Coal After Preparation.

Comments by G. F. Osler, general manager, Pittsburgh Terminal Coal Co. 2:50- 3:05

General discussion 3:05- 3:30

HOTEL GIBSON

6:30 p. m. Informal "Get-Together" Dinner, Hotel Gibson. Speaker, A. J. Moorshead, president, Madison Coal Corporation.

8:00 p. m.

Subject: How To Increase The Percentage Of Lump Coal By Better Blasting Methods

Chairman: H. S. Adams, president, Peerless Coal Co.

Comments by N. S. Greensfelder, editor, The Explosives Engineer 8:00- 8:10

General discussion 8:10- 8:30

Reports of Experiments in the Springfield, Ill., District.

Comments by H. C. Adams, president, Central Operators' Association 8:30- 8:40

General discussion 8:40- 9:00

Tests That Have Been Made to Produce More Lump Coal in the Pittsburgh District.

Comments by C. W. Nelson, Research Fellow Carnegie Institute of Technology and U. S. Bureau of Mines 9:00- 9:10

General discussion 9:10- 9:30

Comments by J. E. Crawshaw, explosives engineer, U. S. Bureau of Mines 9:30- 9:40

General discussion 9:40-10:00

Motion Pictures of Various Coal Mining Operations Following the Discussion.

Wednesday, May 14

Morning. Meeting of the National Coal Association.

1:30 p. m. Music Hall Auditorium.

Subject: Correlation Of Mechanical Loading With Haulage and Mining Systems—Part I

Chairman: Howard N. Eavenson, consulting engineer.

1. Review of Progress.

Comments by D. J. Carroll, chief engineer, Chicago, Wilmington and Franklin Coal Co..... 1:30- 1:40

General discussion 1:40- 2:00

2. Determining Factors in Application of Various Types.

Comments by Raymond A. Walter, consulting engineer 2:00- 2:10

General discussion 2:10- 2:30

3. Preparation of Mechanically Loaded Coal.

Comments by Thomas F. Downing, Jr., general manager, Logan County Coal Corporation 2:30- 2:40

General discussion 2:40- 3:00

4. Mechanical Loaders for Rapid Entry Driving.

Comments by Carl Scholz, general manager, Raleigh-Wyoming Coal Co. 3:00- 3:10

General discussion 3:10- 3:30

Thursday, May 15

Morning. Meeting of the National Coal Association.

1:30 p. m. Music Hall Auditorium.

Subject: Correlation Of Mechanical Loading With Haulage and Mining Systems —Part II

Chairman: Howard N. Eavenson.

5. In Connection with Room-and-Pillar Mining.
   Comments by David Ingle, president, Ayrshire Coal Co. 1:30- 1:40
   General discussion 1:40- 2:00
6. In Connection with Longwall Mining.
   Comments by R. Dawson Hall, engineering editor, "Coal Age" 2:00- 2:10
   General discussion 2:10- 2:30
7. Relative to Mine Car Haulage.
   Comments by J. Dearing Christian, assistant to President Imperial Colliery Co. 2:30- 2:40
   General discussion 2:40- 3:00
8. Relative to Conveyor Haulage.
   Comments by Everett E. Drennen, president, West Virginia Coal & Coke Co. 3:00- 3:10
   General discussion 3:10- 3:30

4:00 p. m.

Entertainment By Cincinnati Convention Committee Including Boat Ride, Barbecue and Dance

Friday, May 16

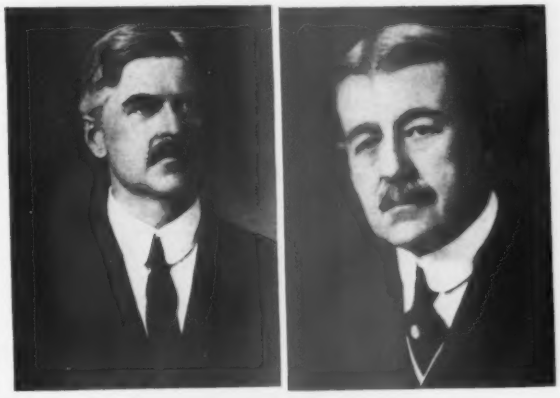
Morning. Meeting of the National Coal Association.

1:30 p. m. Music Hall Auditorium.

Subject: Necessity For Rock Dusting

Chairman: John E. Jones, safety engineer, Old Ben Coal Corporation.

1. Occurrence, Characteristics and Behavior of Coal Dust.
   Comments by J. W. Paul, mining engineer, U. S. Bureau of Mines..... 1:30- 1:40
   General discussion 1:40- 1:50
2. Actual Experiences with, and Tried Methods of, Applying Rock Dust.
   Comments by John E. Jones 1:50- 2:10
   General discussion 2:10- 2:30
3. Methods of Procedure.
   Comments by John T. Ryan, general manager, Mine Safety Appliances Co. 2:30- 2:40
   General discussion 2:40- 2:50
4. Rock Dust vs. Water.
   Comments by Edward Steidle, supervisor of Cooperative Mining Department, Carnegie Institute of Technology.. 2:50- 3:00
   General discussion 3:00- 3:10
5. Cooperation of U. S. Bureau of Mines.
   Comments by George S. Rice, chief mining engineer, U. S. Bureau of Mines 3:10- 3:20
   General discussion 3:20- 3:30



W. R. Roberts, Chairman, Coal Branch, Standardization Division, American Mining Congress

Above—Geo. S. Rice, U. S. Bureau of Mines; H. C. Adams, Peerless Coal Co.

A partial list of the companies who will have exhibits at the National Exposition of Coal Mining Equipment, together with the material they plan to show, is as follows:

AMERICAN MINE DOOR COMPANY, Canton, Ohio

Will exhibit automatic mine door in operation; automatic switch thrower; cable splicers; and other electrical devices.

ATLAS POWDER COMPANY, Wilmington, Delaware.

Will have display of empty dynamite cases, dummy cartridges, dummy blasting caps, dummy electric blasting caps, blasting machines, rheostats, galvanometers, leading and connecting wire. The display will cover all the accessories used in blasting work.

AUTOMATIC RECLOSING CIRCUIT BREAKER CO., Columbus, Ohio

Will exhibit automatic reclosing circuit breakers for switchboard mounting; enclosed type for sectionalizing distribution system underground; automatic motor starter for mine pumps; battery charging switch for protecting storage batteries on charge; thermal relays; bearing relays; overload relays; and miscellaneous relays.

BETHLEHEM STEEL COMPANY, INC., Bethlehem, Pa.

Will exhibit the new Bethlehem steel mine ties; heavy duty mine frog and switch work, including solid manganese frogs; heavy duty switch; parallel throw switch stand; manganese and rolled steel guard rails, etc.; also treated mine-car coupling links and coupling pins; steel sprags with guards, etc.

CAR-DUMPER AND EQUIPMENT COMPANY, Chicago, Ill.

Will exhibit "Solidcar" self-dumping cage model.

CARNEGIE STEEL COMPANY, Pittsburgh, Pa.

Will exhibit steel mine timbers; steel cross ties; and steel wheels for mine cars and mine locomotives.

CENTRAL FROG AND SWITCH COMPANY, Cincinnati, Ohio.

Will exhibit mining track equipment, such as frogs, switches, switch stands, turnouts, extension points, steel ties, etc.

CHICAGO PNEUMATIC TOOL COMPANY, New York, N. Y.

Will exhibit electric and pneumatic rotary coal drills (mounted and unmounted); pneumatic percussive auger; rock drill; portable electric drill and grinders; portable pneumatic drill and grinders; electric hammer drill; pneumatic hoists; and air compressors (mine car, portable and stationary).

CINCINNATI ELECTRICAL TOOL COMPANY, Cincinnati, Ohio

Will exhibit portable electric coal drills; portable electric hand drills; electric bench grinders and floor grinders.

COAL AGE, New York City

Publications.

COPPUS ENGINEERING CORPORATION, Worcester, Mass.

Will exhibit Coppus VANO Blower for auxiliary mine ventilation featuring compressed-air driven blower.

DEMING COMPANY, Salem, Ohio

Will exhibit an "Oil-Rite" motor-driven horizontal power pump in operation; a "Marvel" electric house pumping outfit in operation; a cross section of an "Oil-Rite" horizontal power pump; two Gokar grease guns; appropriate photographs, etc., descriptive of Deming mine pumps for all uses.

DIAMOND MACHINE COMPANY, Monongahela, Pa.

Will exhibit the Fort Wayne electric rock drill.

E. I. DU PONT DE NEMOURS & CO., INC., Wilmington, Delaware

Will display cabinets showing imitation cartridges of dynamite, granulations of blasting and sporting powders, and various accessories required for detonation of explosives; also an exhibit of Ventube for ventilation of mines, samples of Brattic Cloth, and fuse manufactured by Ensign-Bickford Company, of Simsbury, Conn.

DURO METAL PRODUCTS COMPANY, Chicago, Ill.

Will exhibit hoist controllers.

DURIRON COMPANY, INC., Dayton, Ohio.

Will exhibit acid-proof equipment.

EDISON STORAGE BATTERY COMPANY, Orange, N. J.

Will exhibit Edison storage batteries, and will demonstrate their ruggedness by one of the tests that Mr. Edison made before allowing the battery to be marketed.

ELECTRIC RAILWAY EQUIPMENT COMPANY, Cincinnati, Ohio

Will exhibit large sample board and loose samples of overhead trolley equipment such as mine hangers, trolley clamps, section insulators, frogs, trolley wheels, trolley harps and splicing ears.

ELECTRIC STORAGE BATTERY COMPANY, Philadelphia, Pa.

Will exhibit, in the foreground, batteries (locomotive and radio types); in the background, two illuminated oil paintings, one depicting a mine locomotive scene, the other a radio scene.

FLEXIBLE STEEL LACING COMPANY, Chicago, Ill.

Will exhibit complete line of belt fasteners for transmission and heavy duty conveyor belts; Flexco and Flexco-Lok expanded steel lamp guards; will feature new styles of the P-19 mill type lamps; and will demonstrate proper application of alligator steel belt lacing and Flexco H. D. belt fasteners.

GENERAL ELECTRIC COMPANY, Schenectady, New York

Will exhibit full automatic substation in operation—150 K. W. size.

GOODMAN MANUFACTURING COMPANY, Chicago, Ill.

Will exhibit model of Goodman locomotives; No. 50 cutter chain; large pictures of new machinery; and catalogs.

HARRIS PUMP AND SUPPLY COMPANY, Pittsburgh, Pa.

Will exhibit La Bour motor driven self-priming centrifugal priming unit; bronze multi port; check valves; bronze wood pipe connectors; an assortment of mine type bronze fittings, and Morris centrifugal pump and motor.

HENDRICK MANUFACTURING COMPANY, Carbondale, Pa.

Will exhibit perforated metal screens; flanged lip screens; riveted elevator buckets; perforated elevator buckets, and conveyor pans.

HERCULES POWDER COMPANY, Wilmington, Delaware

Complete information on explosives, blasting supplies, and their uses.

J. R. HOE & SONS, INC., Middlesboro, Ky.

Will exhibit one complete model mine, several trucks and several parts of mine cars.

HOLMES & BROS, ROBT., Danville, Ill.

Will exhibit two small working models of mine cage and end loader; and framed photographs of other machinery.

HYATT ROLLER BEARING COMPANY, Harrison, N. J.

Will exhibit large motor-driven model of Hyatt bearing as used in mine cars, showing the principles of mounting and operation; smaller Hyatt bearings enclosed in glass, showing the lubricating principles; and representative samples of Hyatt bearings as used in mine cars.

IRONTON ENGINE COMPANY, Ironton, Ohio

Will exhibit complete low-type worm-drive IRONTON locomotive; complete IRONTON charging panel; and miscellaneous large photographs of IRONTON locomotives.

JEFFREY MANUFACTURING COMPANY, Columbus, Ohio

Will exhibit drop forged steel repair parts for coal cutters; photographs; and catalogues.

KANAWHA MANUFACTURING COMPANY, Charleston, W. Va.

Will exhibit complete three track shaker screen model, mechanical parts of copper and driven by 3 electric motors and installed in wood tipple; outfit completely assembled will be about 4 ft. wide by 5½ ft. long by 4 ft. high.

KEYSTONE CONSOLIDATED PUBLISHING COMPANY, Pittsburgh, Pa.

Will have display of Mining Catalog, Coal Edition, an annual catalog containing descriptive information on equipment and supplies for use at coal mines, together with treatises, engineering data, and tables pertinent to coal mining subjects; and Coal Catalog combined with Coal Field Directory, an annual catalog for the buyers and sellers of coal.

KEYSTONE LUBRICATING COMPANY, Philadelphia, Pa.

Will exhibit Keystone manifold safety lubricator, showing photographs of installations made on Jeffrey, Goodman and General Electric mine locomotives, Goodman Arcwall coal cutting machines, Joy coal loaders, etc. Will also display various densities of Keystone grease for mining equipment, including ball and roller bearing lubricants.

KING POWDER COMPANY, Cincinnati, Ohio

Will exhibit packages and containers of various commodities manufactured.

LINCOLN STEEL AND FORGE COMPANY, St. Louis, Mo.

Will exhibit Lincoln mine car (model); Lincoln self-aligning journal box trucks for mine cars (both inside and outside journal box application—actual equipment); Lincoln mine car complete (models); Lincoln automatic greasing machine for greasing mine cars; Lincoln metal mining trucks.

LUNKENHEIMER COMPANY, Cincinnati, Ohio

Will exhibit complete line of bronze, iron and steel globe, gate and check valves; boiler mountings; safety non-return valves; lubricating devices; and engineering appliances of a similar nature.

MINE SAFETY APPLIANCES COMPANY, Pittsburgh, Pa.

Will exhibit their General Safety equipment for mines, including the new Edison Electric Miner's Lamp (1923-4 invention), the Miner's Self-Rescuer, Improvements in Rescue Apparatus, a New Mask for Mine Fire Fighting and the new M. S. A. H-H Inhalator for treating the unconscious in the method designed by Drs. Yandell, Henderson and Haggard, of Yale University.

MINING SAFETY DEVICE COMPANY, Bowerston, Ohio

Will exhibit a graded track leading to a mine cage; a Nolan Automatic Cager located on track and a set of Nolan Automatic Horn Stops on cage; a trip of mine cars will be held in position on the track and fed one by one to the cage by the Automatic Feeder, and will be caught and held on the cage by the Automatic Cushioned Horn Stop.

OHIO BRASS COMPANY, Mansfield, O.
Will exhibit trolley line equipment; rail bonds; electric arc welders; porcelain insulators; and headlights.

OXWELD ACETYLENE COMPANY, New York City.
Will exhibit Oxy-Acetylene cutting and welding equipment; oxygen and acetylene in cylinders; calcium carbide for generating acetylene; demonstrations of cutting and welding steel and cast iron.

PHILADELPHIA STORAGE BATTERY COMPANY, Philadelphia, Pa.
Will display storage battery exhibition cells. These cells are dummies for display only and contain no acid or liquid. There also will be several framed pictures.

PITTSBURGH KNIFE AND FORGE COMPANY, Pittsburgh, Pa.
Will exhibit mine-car hitchings; rotary dump swivel hitchings; mining machine bits and bit steel.

POST-GLOVER ELECTRIC COMPANY, Cincinnati, Ohio
Will exhibit Post-Glover Homanite Steel Grid Resistance; W. & W. Self-starters; and mining specialties.

POWER EQUIPMENT COMPANY, Pittsburgh, Pa.
Will exhibit a coal-mine gathering pump connected to a 2 h. p. motor, pumping water from an open tank and returning water to same tank; also one pump dismantled to show the interior construction.

RAIL WELDING AND BONDING COMPANY, Cleveland, Ohio
Will have demonstration of Una Bonding by the Una Process and display of Una Bonds, Una Dynamotor, type BB, and Ajax resistance welder.

ROBERTS AND SCHAEFER COMPANY—AMERICAN COAL CLEANING CORPORATION, Chicago, Ill.
Will exhibit American Pneumatic Separator mounted for exhibit operation; operating model of standard Marcus screen; operating model of balanced Marcus screen; and automatic machine (Super-Salesman) exhibiting 16 enlarged photographs of plants.

ROLLWAY BEARING COMPANY, INC., Syracuse, N. Y.
Will exhibit heavy duty precision bearings for mining machines, ore crushers, motors, hoists, etc.; wide type bearings for coal and ore cars, shives, conveyors, etc.

ROME WIRE COMPANY, Rome, N. Y.
Will exhibit Rome "Super-Service" products, including cords, locomotive and mining machine and welding cables; heavy-duty rubber sheathed cord or cable for service everywhere regardless of conditions; a rubber-sheathed cable that is built for roughing it.

SANFORD-DAY IRON WORKS, INC., Knoxville, Tenn.
Will exhibit miniature coal mine in full operation, equipped with automatic drop bottom cars and automatic couplers; moving pictures of drop bottom car installations and showing other equipment manufactured by company; power grease gun; trucks, etc.

Ralph C. Becker, Chairman Program Committee

SKF INDUSTRIES, INC., New York City
Will exhibit a range of Skayef self-aligning ball and roller bearings, Hess-Bright deep-groove ball bearings, also a number of interesting moving models which will demonstrate the anti-friction qualities of SKF marked ball bearings.

SIMPLEX WIRE AND CABLE COMPANY, Chicago, Ill.
Will exhibit Tirex mining cables; Tirex portable cords; cables insulated with rubber, varnished cambric and paper for all electrical purposes; and borehole and shaft cables.

SOUTHERN WHEEL COMPANY—AMERICAN BRAKE SHOE AND FOUNDRY COMPANY, St. Louis, Mo.
The Southern Wheel Company will exhibit no equipment, but will have on hand catalogs, circulars, souvenirs, etc., and will have an assortment of posters regarding their various products.

The American Brake Shoe and Foundry Company will exhibit their various lines of mine locomotive brake shoes.

STREETER-AMET WEIGHING AND RECORDING COMPANY, Chicago, Illinois
Will exhibit automatic weight indicating and recording machinery for weighing moving loads.

SULLIVAN MACHINERY COMPANY, Chicago, Illinois.
Will have photographs of Sullivan Ironclad Coal Cutters; portable underground air compressors; hammer drills; diamond core drills; coal loading machines; cutter bit sharpeners, etc. Will also have on hand catalogs, bulletins, etc., on above machines.

TEMPLETON, KENLY & COMPANY, LTD., Chicago, Illinois.
Will exhibit Simplex Jacks—showing different models for use in and around mines; repair work on all equipment and track maintenance; all with safety feature of automatic raising and lowering.
Jack capacity from 1 to 35 tons.

TIMKEN ROLLER BEARING COMPANY, Canton, Ohio
Will exhibit axles of various designs which are equipped with Timken tapered roller bearings for use in coal-mine service, also conveyor rolls equipped with Timken tapered roller bearings.

TRIUMPH ELECTRIC COMPANY, Cincinnati, Ohio
Type T self-start induction motor showing remote control for fans and blowers, pumps, etc., in mines, regardless of weight of initial load.

WATT MINING CAR WHEEL COMPANY, Barnesville, Ohio.
Will exhibit low-type composite mine car with "Watt Famous" Hyatt roller bearing truck and band brake, being one of a fleet of 600 cars now being built by company for the Island Creek Coal Company; different types of trucks for mine cars; will have demonstration of the Bulldog Automatic Couplers for mine cars.

WAVERLY OIL WORKS COMPANY, Pittsburgh, Pa.
Will have a display of ALL PENNSYLVANIA lubricating oils and greases, and special lubricants adapted to the use of mining machinery.

WEINMAN PUMP MFG. COMPANY, Columbus, Ohio, and Pittsburgh, Pa.
Will exhibit 4x7 Special Anti-Acid Mine Gathering Pump; 3x3 "LLB" Full Ball Bearing; Special Anti-Acid Metal; and Double Suction Centrifugal Pump (both pumps will be in operation).

WEIR FROG COMPANY, Cincinnati, O.
Will exhibit complete mine turnout and various types of switch stands and other track fittings.

THE BITUMINOUS COAL INDUSTRY—ITS RELATIONS TO THE PUBLIC AND ITS OWN NEEDS

Coal Facing Most Critical Period In Its History—Great Need For Leadership—A Real Program For Presenting To The Public Facts Concerning Coal Essential—Ways And Means Outlined

F. R. WADLEIGH*

THE coal industry is today facing conditions that have never before existed—the most critical period in its history—conditions that call for leadership of the highest type from all standpoints, financial, operating and distribution, as well as for the closer coordination of all its organizations and members—the latter the greatest need of the industry today, carrying with it, education of the public, of its representatives and of the industry itself; some measure of realization of that need is unmistakably evidenced today and augurs well for the future if carried further into action.

EDUCATION OF THE PUBLIC

There has been, during the past year, a great deal written and said about educating the public regarding coal; much of the projected legislation has stressed its importance and the good that would result from a greater knowledge of the industry on the part of the public.

The U. S. Coal Commission made the following statements in its reports, all emphasizing the importance of the industry and the need for public knowledge regarding it:

"The coal-mining industry is not only one of the largest in our country, but its uninterrupted service is essential to the well-being of the whole people; the condition of this key industry affects directly and in large measure the prosperity of all American industry; the large public interest in coal raises fundamental questions touching the relation of private right to public welfare; but underlying these questions in economics and law are the issues of peace in the industry and justice to the individual—issues that strike deep into the heart of American institutions."

"This dependence upon coal is not only countrywide but all embracing: every man, woman, and child is the beneficiary of coal."

"As the direct source of the energy that turns most of the wheels of an industrial nation, coal affects the community at large to a degree that is not generally realized until the continuity of this service is threatened."

"The public-welfare element in coal, then, is seen in the dependence of public health and safety on an unfailing supply of fuel, in the close connection between the prosperity of most industries and the uninterrupted operation of the coal mines, and in the obvious fact that without coal the great network of railroads which binds together this great country would be an idle, useless thing."

"The first step toward protection of the public interest in the mining and marketing of coal as a continuous and efficient service is a better public understanding of the coal business."

In addition to what the public wants to know about coal, it should be made to know all facts that would be of benefit, both to the consumer and to the industry; all set forth in plain, unvarnished, readily understandable language, stressing points that are of especial interest and importance.

"The Government and the leaders of the coal industry both are blamable if the public has no proper conception of what coal means to the country, what conditions and handicaps have to be met in the mining and distribution of coal, what economies can be effected, what advance is needed and what can be done in bettering working and living conditions. On all of these subjects, the public needs information and the industry needs publicity."

"The Commission realizes that the largest opportunity and the largest responsibility for putting the coal industry in order lies with the industry itself. Self-determination is the ideal."

"Every industry and every citizen throughout the country is directly or indirectly dependent upon coal."

"The coal mining industry, in point of numbers employed, outranks any single manufacturing industry and stands next to transportation and agriculture. Approximately three quarters of a million men are employed in this industry, of whom 90 percent work underground. The capital invested, according to the rough figures of the census, is $2,330,000,000, of which $430,000,000 is invested in the anthracite region and the remainder in the bituminous fields."

But, the average citizen is mainly interested in the coal he uses for keeping his house warm; coal means to him the material he uses for that purpose, be it anthracite or bituminous and it is difficult to interest him in the economics and operation of the coal industry generally.

The manufacturer or industrial user is mainly interested in the purchase of the kind of coal that will do his work for the least outlay of money. The railroads have an added interest in its transportation as an important source of revenue, but the basic questions and facts of the industry are of little interest to most consumers, while many of the latter are prejudiced against the industry and don't care to learn any more about it than is necessary for their own immediate purposes.

Even in Great Britain, where coal has been in the public eye quite as much as in this country, the colliery owners have recently started the publication in the trade and shipping papers of a series of short talks on coal for the express purpose of educating the public to a knowledge of the question and the difficulties involved in the operation of the coal industry.

There is also a distinct and widespread feeling of distrust and suspicion regarding any statements made by those connected with the industry as to their difficulties and the conditions under which they must operate. The industry itself is largely to blame for this feeling and it is quite time its leaders should take cognizance of this state of affairs and start immediate and definite action.

So far, the pitiably inefficient and futile efforts that the industry, as a whole, has made to enlighten and interest the public have had little effect, except to cause controversies and excite the ridicule and often contempt of the general public, including the public press.

It does little good to say that the average price of coal (bituminous) is lower now that it has been since 1916, when the man in the street knows he has paid $10 or $12 per ton for the coal in his cellar.

Some real, easily understood and convincing explanations are needed and must be forthcoming, if the consumer is to be assured in his mind that there are good and sufficient reasons for the facts about which he feels aggrieved.

The coal industry needs a public relations counsel, perhaps several of them; it needs some constructive and convincing work in the way of honorable and trustworthy education, not only of the public, but of itself. The industry needs to be educated to its possibilities and its

*Tuttle corporation.

responsibilities, its shortcomings, its advantages, in what it has, in what it lacks and in what it should do to put itself in the best light, in the light that it deserves to be placed in, before the public.

It has its associations, it is true, but their work is practically a sealed book to the public, which hears little about them except in times of emergency. What are these associations doing today to help the average coal man or to put the industry in its proper place as one of the great basic industries of the world?

During the war, the importance of coal in the world's then activities was clearly and strongly brought out; but almost entirely along the lines of war necessities. Its peacetime importance has been lost sight of, except in times of scarcity and in some particular instance.

The industry itself and those engaged in it should be awakened to a full understanding of its importance in every phase of our life, show the public what it is, what it means and that it stands for what is best, as much as any individual or any other industry. It should not be on the defensive all the time, subject to the whims and ignorance and political ambitions or our legislators, but it should be always on the offensive. If it must fight, let it hit the other fellow first—not wait until a false statement has been made, but put out its own facts first and in a convincing way, not in a partisan spirit, but as demanding a square deal and no favors.

Let the industry organize itself as strongly and effectively as it can, let it give out the facts insistently as to its position and importance—the ignorance, often wilful, of the public and the press regarding it will quickly be displaced by enlightenment and interest. Let it claim its just dues and not mere sufferance, as being a disagreeable necessity.

Why, there isn't a material substance in the world so interesting, so full of possibilities as is coal; so universally known in the civilized world and so valuable. Yet we do not even know its constitution and chemists and geologists are still at variance as to its characteristics and formation.

To educate the public to overcome the feeling, often expressed or implied, of prejudice against the industry, is one of the most important problems facing it today. Yet what efforts are being made to solve it, either by trade associations or by individuals? The man who has done more than any other to put the industry in its proper place before the public, to obtain for it fair treatment, to save it from its own self-sufficiency and narrow mindedness, who realizes fully its importance and its needs, never had any commercial or financial connection with the industry. Yet there are those in the industry who think and have said that his efforts were not single-minded, but were made from selfish motives and with an eye to his own popularity. It is not necessary to mention names, but if the industry has in it men with the brain and will power to do as much, now is the time for them to get busy and exert all their ability in bringing the industry to its deserved place in the eyes of the country.

F. R. Wadleigh

The industry should, then, organize itself to the most effective and powerful limit, but always with due regard to public rights and fair dealing, not only to the public, but also to its own members. An integral part of such organization would be education and public relation. Today, its unrepresentative organizations have numerous committees that seldom, if ever, meet, but not one on public relations (as distinct from "Publicity") nor have they a public relations counsel (the newly accepted name for the high-class publicity man) now a regular and important official in other trade bodies and separate industrial and transportation companies and systems.

Legislators and Legislation

As for our legislators—as long as the coal industry is the misunderstood, long-suffering football of calumny and error, without solid organization, not willing to help itself even—so long will they continue to consider it a fertile field for political advancement and the securing of votes.

Real and effective education of the public by organized and systematic methods will soon smoke out the self-seeking legislator or government official, Federal or State, and will give us sane business-like and well-considered legislation; if we must have legislation, let it be constructive and for the good of both the public *and* the industry.

The amateur is generally fully prepared to give expert advice and to deliver final judgment in matters upon which his ignorance is patent to everyone but himself. Congressional debates and hearings on coal are full of personalities, prejudices and politics, regardless of logic or economic and social values.

Education in the workings of the coal industry is needed by none more than by our legislators. The various hearings and debates on coal held by them during the past three years have shown lamentable ignorance of the basic facts and conditions underlying the industry.

The ignorance and inefficiency of our legislators was pointedly shown in the Act of September 22, 1922, creating the office of Federal Fuel Distributor, an Act which created an office without power, a mere gesture.

The various reports issued by the U. S. Coal Commission have been available to the members of our Federal Legislative Bodies, but it is doubtful if they have been studied by any except the few who desired to use the facts and recommendations contained in the reports for their own special purposes.

However, it would seem that the only way in which the industry can reach individual legislators, so as to compel them to attain some measure of knowledge of the industry, is through the education of the public, an added reason for insistent and systematic work in that direction.

It is hoped that authorization for the publishing of the complete report of the Coal Commission will be authorized by Congress, so that it may be available to all.

Value of Coal to the Community

The health as well as the wealth of the whole community is intimately bound up with the proper use of coal, whether in manufacturing operations, in transportation or as a domestic fuel.

The nation ought to learn the true value of its coal. Because not only is it the source of the larger part of its artificial light, heat and power, but it yields a whole series of valuable by-products which form the raw materials for the manufacture of either synthetic drugs, disinfectants, antiseptics and dyes, for the manufacture of explosives for industrial use, or which may be employed as motor fuels, fuel and lubricating oils, or as fertilizers for man and

beast; coke made from coal is the most valuable metallurgical fuel we possess, as well as of great value for domestic heating.

Has the coal industry, individually or collectively, made any efforts to prove to the public, to impress upon it, the importance and value of its product? It has not. It has left to economists, to technical men, engineers and chemists the task of public education regarding the true worth of coal.

Each new use of coal, each new improved method of use means wider markets, yet the industry, as an industry, has instituted or financed no researches into any of the numerous angles and problems of the coal question, either technical or economic.

U. S. Coal Commission

If the defunct and unlamented U. S. Coal Commission had been a Commission brought into being and backed by the industry, composed of the best men obtainable, trained along technical and economic lines that brought them into contact with coal problems, a wonderful work for the industry as well as for the public would have resulted.

The Coal Commission did collect a vast amount of facts, statistics and theories, at great expense to the industry and to the tax payer, but the educational value of its work to the public is highly problematical; not even have its reports been published for general distribution; its life was too short for the job; its methods have been severely criticized; its recommendations likewise.

Future of the Industry

Criticism of past activities or lack of activities is entirely proper and useful. What is needed by the industry now is a systematic, logical, effective plan for the future, having as its principal aim the education of the public, its representatives and the industry's own members.

"Those responsible for conditions in the industry should undertake its reform." These words of the President point out the way—the industry must help itself.

As I have suggested elsewhere, let the leaders of the industry get together, under the guidance of the one man outside of the industry who has shown that he knows, appreciates and sympathizes with their best interests as well as his willingness to help—let them work out a plan for putting the industry in its true light, a light that should shine inwardly as well as outwardly.

As to who should start such a movement, I have suggested elsewhere a Committee composed of—

1. The Bituminous Operators' Special Committee.
2. The Presidents' and Directors' Committees of the American Wholesale Coal Association and the National Retail Coal Merchants' Association.
3. Representatives of the Anthracite Policies Committee.
4. Representatives of the Anthracite Coal Operators' Association.

Such a Committee could, it is believed, carry with it the whole coal industry—who will take the lead?

Mr. Samuel B. Crowell, President of the National Retail Coal Merchants Association, in an address to the members of the Detroit Coal Exchange on February 27th, has already emphasized the great importance of cooperation in the coal industry and suggested the organization of a "Coal Institute" and the fostering of "Personality" in all branches of the business.

The coal industry needs a public relations council, perhaps several of them; it needs some constructive and convincing work in the way of honorable and trustworthy education, not only of the public, but of itself. The industry needs to be educated to its possibilities and its responsibilities, its shortcomings, its advantages, in what it has, in what it lacks and in what it should do to put itself in the best light, in the light that it deserves to be placed in, before the public.

Two really constructive thoughts these are and well worth careful consideration by the industry; it is hoped that action may follow and some definite proposals be made by the other duly constituted leaders of the industry.

Will Mr. Warriner, Mr. Brydon and Mr. Dering respond, or will they consider the suggestion impracticable and useless? With the three years before us of comparative peace in the bituminous industry as regards labor troubles and a year and a half in the anthracite —with no legislation probable until the next session of Congress—is not the time ripe for immediate action?

The National Coal Association has a strong "publicity" committee—could it not be active along educational lines? The combined knowledge of this Committee, comprising as it does, some of the leading men in the industry could, with little trouble, write and publish a series of statements regarding the industry that would be authoritative, accurate, interesting to the public and, if properly handled, could obtain wide circulation.

In addition to what the public *wants* to know about coal, it should be *made* to know all facts that would be of benefit, both to the consumer and to the industry; all set forth in plain, unvarnished, readily understandable language, stressing the points that are of especial interest and importance.

Individual companies have done considerable work in this direction, but generally as regards their own products alone and more in the way of advertising than along educational lines, but the bituminous coal industry as an industry has done little or nothing toward acquainting the public with its workings and the underlying and important facts regarding it.

It is little wonder that our legislators have such a lamentable lack of knowledge of the industry and that their legislative efforts have been largely founded upon ignorance of the true coal question situation.

The industry has opposed many attempts at legislation, but has done little to show the public or its representatives what the real facts are and what they mean.

The coal industry must sell itself to the public, just as important a matter to them as to the railways, and could use with benefit the conclusion reached by the Railway Age regarding the railroads—that their most important problem is that of "selling themselves to the public."

Have the coal carrying railroads of the country considered the part they might play in the education of the public regarding coal and the benefits that would accrue to them if they made some efforts in that direction? It would seem that great possibilities lie in this direction; one that would not only assist that portion of the coal industry depending upon each of them for existence, but also make for better operation and revenue increase.

As Mr. Hoover has said "really informative publicity would protect the great majority of (coal) operators from the criticism that can only be properly levelled at the minority."

The industry must find out what the public wants to know; it must not only interpret itself to the public, but interpret the public to the industry.

The evils and wrongdoings of the industry have been given wide publicity by others; let the industry make use of every medium of communication to set forth and prove its good features.

The coal industry apparently has not and does not realize the growing power of public opinion. The future of public opinion is the future of civilization. "The power of public opinion is constantly increasing and will keep on increasing." (Professor Sonnies.)

Let this sink into the minds of the industry's leaders and bring forth some immediate and efficacious action, looking to the education and molding of public opinion, so that the industry may be

(*Continued on page* 230)

NATIONAL COAL ASSOCIATION ANNUAL MEETING

Everything In Readiness For Most Successful Meeting Ever Held By National Coal Association—Large Attendance Assured—Program To Be Announced Shortly

FINAL details for the program for the Seventh Annual Convention of the National Coal Association to be held at the Hotel Sinton, Cincinnati, Ohio, May 14, 15 and 16, have not yet been fully completed, but enough is already known to make it assured that it will prove a most interesting, enjoyable and instructive occasion. Everything is being put in readiness, designed to make it the most successful convention ever held by this association. Advices received from the Hotel Sinton state that requests for reservation are coming in rapidly and in large numbers, and every indication points to an unusually big attendance of delegates and other coal operators.

Operators Urged To Attend

The National Coal Association is urging operators desiring to attend the convention to send in their reservations either direct to the Hotel Sinton or to the National Coal Association at the earliest moment in order to secure adequate accommodations.

W. E. E. Koepler, who is chairman of the Committee on Arrangements, recently announced two important events scheduled for this meeting. One is that arrangements are being made for a big public meeting to be held in Music Hall, Wednesday, May 14, where the American Mining Congress will stage its National Exposition of Mining Machinery and Equipment, which will be addressed by prominent speakers, these addresses to be broadcasted all over the country.

Prominent Speakers

The other announcement is that Samuel B. Crowell, of Philadelphia, president of the National Retail Merchants' Association, has accepted an invitation from the National Coal Association to address the convention on the morning of May 15. Mr. Crowell is popularly and widely known to the retail coal trade, is a speaker of ability and his address on, "Our Customers," should prove one of the most interesting features of the convention. It is expected that Mr. Crowell will emphasize the necessity for a better understanding between the coal industry and the public. Announcement also has been made of an address by Melville Stone, general manager, The Associated Press.

Cincinnati Committee

The Cincinnati committee is both enthusiastic and active. It has arranged many splendid entertainment features for the delegates, including an old fashioned barbecue across the Ohio River, in Kentucky, and a boat trip.

All members of the National Coal Association are cordially invited by the American Mining Congress to attend its National Exposition of Coal Mining Equipment which will be staged during the week of the association's convention and to join in the discussions of practical operating problems of the coal industry which are to form an important part of the exposition sessions. The invitation was extended on behalf of the American Mining Congress by J. F. Callbreath, secretary, in a letter to Harry L. Gandy, executive secretary of the National Coal Association, in which he expressed that it is his opinion that the outstanding problem of the coal industry is to secure lower cost per ton of coal.

Registration at both the Hotels Sinton and Gibson indicate a record-breaking attendance.

Harry L. Gandy, Executive Secretary of the National Coal Association

Above—W. E. E. Koepler, Chairman of the Committee on Arrangements

Right—P. A. Penna, Secretary, Indiana Bituminous Coal Operators' Assn.

CONSOLIDATIONS OF BITUMINOUS MINING OPERATIONS

Consolidated Selling Agencies Feasible—Financial Consolidation Mining Properties Desirable And Practical—Consolidation Mining Properties Highly Desirable, Perfectly Feasible And Entirely Possible Under Existing Law

By JOHN C. BRYDON*

IT has been repeatedly stated during recent years that the bituminous coal industry is sick. Many attempts at diagnosis have been made and many remedies have been suggested. The latest attempt at diagnosis and the latest suggestion of a possible cure was made by the United States Coal Commission, which went out of existence about eight months ago. That commission, as the result of a year's study carried out with the cooperation of various groups in the industry, came to the conclusion that one of the ills of the bituminous industry is "over-development."

In considering this question of "over-development" the distinction must be made between that excess of capacity over normal production which is necessary to provide a safeguard to the public in case of a peak demand and that real over-development which involves the existence of a greater capacity than is necessary to take care of even unusual requirements. In any competitive industry there is bound to be an excess of capacity over ordinary demands. If this were not so, a slight increase in demand would result in a competition of buyers for the available supply which would send prices soaring. In the bituminous coal industry the experience of the last thirty years has shown that there is a fairly definite relationship between capacity and demand, as evidenced by actual production, which is normal to the industry, and that any departure from this relationship in either direction leads to unfortunate consequences. From 1890 to 1918 actual production was approximately 73 percent of capacity, and while this ratio remained approximately constant, prices were steady. When the demand, as evidenced by actual production, came to be appreciably more than 73 percent of the mine capacity of the country, there was a distinct upward movement of prices. Throughout most of this period, however, the ratio was maintained and prices were reasonably steady.

During the war the normal relationship between capacity and demand was disturbed, chiefly through the deliberate action of the government in fixing the price of coal at such a figure as to encourage increased production and the opening of new mines. I readily concede the wisdom of this action, which was made necessary by the exigencies of the war. The result, however, was to produce as greater degree of excess capacity than had previously been the case. This effect was not fully apparent until 1919, 1920 and 1921, as the new mines opened were not completely developed until after the signing of the Armistice. With the development of those mines, capacity increased very rapidly, and in 1923 we find that the ratio of production to capacity is about 63 percent.

The United States Coal Commission placed great stress on the over-development of the industry and has stated that it is one of the chief causes of restlessness of labor, increased costs of production, and unsatisfactory conditions in the bituminous industry generally. While the commission's reports do not always clearly distinguish between necessary excess capacity and true over-development, there is no doubt in my mind that the conclusions reached are sound in principle. While a certain amount of apparent over-development is essential as a safety valve for unusual circumstances, there can be no question that the bituminous mines now open in the United States can more than meet the fuel requirements of the nation even at the peak of demand.

What is the remedy? The suggestion of the commission is as follows: "The consolidation, grouping or pooling of bituminous mining operations should be not only permitted but encouraged." And the president, apparently taking the same view, said in his message to Congress: "By encouraging greater unity of ownership and possibly by permitting common selling agents for limited districts on condition that they accept adequate regulations and guarantees that competition between districts be unlimited, distribution and continuity ought to be improved." He further said, "The need is for action under private ownership that will secure greater continuity of production and greater public protection," and that "those responsible for the conditions in the industry should undertake its reform."

This suggestion that consolidation of mining operations would have a stabilizing effect on the industry, would tend to eliminate undesirable over-development and would permit of more continuous operation, was originally brought to the attention of the Coal Commission by the Bituminous Operators' Special Committee. On July 30, 1923, the committee submitted to the Coal Commission certain Proposed Findings of Fact as to the Bituminous Coal Industry. Finding No. 32 read in part as follows: "Consolidation of the excessive number of companies into a smaller number of larger and more responsible ones, competing with each other, would tend to increase the use of improved mining methods and equipment; to the maintenance of sound standards of community living conditions; would tend to prevent undue lowering of wages in time of depression, and to check speculative prices in times of shortage, and to increase the practicability of the use of long term contracts; and so long as the relative size of such consolidations did not exceed that of units operating in other highly competitive industries it would not prevent the continuance of keen competitive conditions in this industry."

It seems to me that the Coal Commission and the President have called attention to a definite obligation resting on the bituminous coal industry to work out, something along these lines. After giving careful consideration to the matter, and after discussing it with many others in the industry, I have come to the conclusions which are embodied in this article, and which I hope may be helpful in solving the problem. These are my personal views, and yet I firmly believe that they express the opinion of a majority of the bituminous operators.

It will be noted that two different suggestions have been made as to the form of consolidation which is desirable. One suggestion is that there be consolidation of selling agencies while the individual mining operations shall retain their identity. The other proposal is that there shall be financial consolidation of mining properties, so that the smaller units of the industry may to some extent merge into larger units. I shall, therefore, consider separately these two topics: Consolidation of Selling Agencies, and Consolidation of Mining Properties; and in dealing with each of these suggestions I shall consider, first, desirability; second, practicability, and third, legality.

DESIRABILITY OF CONSOLIDATION OF SELLING AGENCIES

In dealing with the question of consolidation of selling agencies, two dif-

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ferent types of consolidations must be considered: first, those effected by consolidations of agencies maintained by the operating companies, or by the establishing of cooperative sales agencies by operating companies not now maintaining sales departments, or by the organization of agencies in which both classes of operating companies participate; and second, those effected by consolidations of agencies not maintained by the operating companies—in other words, consolidations of wholesalers or jobbers.

Under the second plan, while there might be a slight reduction in the ultimate price to the consumer, due to the passage of a larger tonnage through a single office, it would be only slight and of temporary advantage. In addition, the second plan would not affect in an appreciable degree, if at all, the overdevelopment which we are attempting to change from an evil to a safe-guard for the public.

The first plan seems to be the one which was in the mind of the President when he delivered his message to Congress. We have many illustrations of this plan in other industries, especially in the citrus fruit industry and in connection with certain live stock and agricultural products. It is of note that these have been very successful, but it should not be overlooked that these cooperative selling agencies are in those industries which have been especially exempted from the application of the anti-trust laws. The President certainly realized that when he said "possibly by permitting common selling agencies for limited districts on condition that they accept adequate regulations and guarantees that competition between districts be unlimited."

The pooling of output or consolidation of selling agencies would cut down considerable of the cost of selling by the elimination of a great deal of expensive duplication of effort and in that respect would have a tendency to reduce the price of coal to the ultimate consumer. And if the consolidation was so arranged that all component companies would participate in the profits of the agency, based on a pre-agreed method of distribution, then the excess over-development probably would be held in reserve and the mines operating would be enabled to produce more regularly and continuously. This would result in lowered cost of production at the operating mines which would be reflected in the price of coal to the consumer. It would also result in the conservation of manpower by concentration at the operating mines and by releasing some labor to other industries where it is needed.

It would seem then that consolidation or pooling of selling agencies would be desirable but in my opinion would not accomplish as much as consolidation of ownership, and in the event of the latter taking place, would be entirely unnecessary.

Practicability of Consolidation of Selling Agencies

While we must admit that consolidated selling agencies maintained by separate operating companies are feasible, because we already have some examples, careful study of these brings to light the fact that these are only successful because of unusual conditions. The difficulties in the way of consolidation of selling agencies, while great, are not insurmountable. These would for the most

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part be due to questions of practice under the consolidation that might cause much dissatisfaction. In general those questions would relate to the methods of handling and distributing orders to the mines and would be questions such as why one mine operates more than another; why one company receives better prices than another for approximately the same grade and quality of coal. All of these things could be satisfactorily worked out and when done would result in a standardization of sizes and of quality which would be desirable and of practical benefit.

In my opinion, then, consolidation of selling agencies would be both desirable and practical, but as stated before, if you have consolidation of mining properties, which I believe even more desirable and practical, they would be unnecessary and of doubtful additional value.

Legality of Consolidation of Selling Agencies

The principle governing the legality of consolidations of selling agencies must depend on whether a monopoly or an unreasonable restraint of trade is involved. This will be governed by considerations not substantially different from those applicable to the legality of consolidations of mining properties, which will be discussed later. There is this difference: In consolidations of selling agencies there must necessarily be agreements between operating companies that are not required in consolidations of mining properties, and these agreements would be at least so close to the border line of the anti-trust laws as to cause much investigation and probable litigation, all of which would be expensive, and which might be reflected in the price of coal to the consumer.

Desirability of Consolidation of Mining Properties

In considering the desirability of the consolidation of mining properties, one must remember that under ordinary conditions only those mines are in operation which can be operated at a cost which will at the going price net the cost of production or a margin of profit, and that as demand increases, causing a rise in price, additional but higher production cost mines come into the market. With more mines in operation, the car supply, which may have been one of the factors in increasing prices, will become diluted and, therefore, take a supply of cars from the more economical mines, thus causing an increase in their operating costs which in the long run has a tendency to still further increase the selling price. Under consolidation the effect of increased demand would be to speed up the production of the economical mines and it would result in a greater production without a dilution of car supply, since the dilution of car supply is for the most part due to the necessity of making many placements of cars, thus slowing down car movement, rather than to the actual lack of cars. Furthermore, under consolidation the higher cost mines would not come into operation until such times as the low cost mines were incapable of producing the needed supply to satisfy the increased demand. This would delay and often prevent entirely any marked increase in price to the consumer.

And there is another side to this, as it affects price. With consolidations of mining properties and the resultant increase of running time at the more economical mines, labor would be more steadily employed, that is, it would have a greater opportunity for work. The cost of production and, therefore, the

selling price would be decreased and the earning power of the miner would be increased. And, further, with the closing down of the high cost mines, which might occur under consolidation, much of the labor at these mines would be released to other industries, where it is needed, and the public, through the coal industry, would not have to support it in part-time idleness.

Under consolidation, although the high cost mines might be closed down, they would still be avaliable as an immediate reserve in case of unusual and extraordinary demand—a reserve necessary and important in all our calculations.

Under our present system, many companies are weak financially and in times of depression are too often compelled to go through receiverships, thus placing a hardship on many unfortunate investors and indirectly placing a burden on the public. With consolidations, much of this would be eliminated. And in addition, under consolidation, competition, while still keen, would not be unintelligent and unbridled, but would be sane and on a reasonable and fair basis and thus in the long run inure to the benefit of the public.

Consolidations of mining properties would accomplish the following:

Economies would be effected in executive work and expenses.

Economies would be effected in selling expense.

The more economical mines would be operated more continuously and more efficiently while the higher cost mines would be held in reserve. And thus man-power would be conserved by concentration at the operating mines and by the releasing of a certain amount of labor to other industries.

Transportation effort would be conserved by requiring from the railroads fewer placements of cars for the same tonnage.

Greater regularity of operation of going mines would be possible with resulting lower operating costs.

Average yearly earnings of miners would be increased, and at the same time the cost of production would be lowered, both of which would be in the public interest.

Prices would be stabilized and runaway markets eliminated.

All of these things would be reflected in the price that the public has to pay for its fuel.

From the foregoing considerations I cannot conclude otherwise than that consolidations of mining properties are highly desirable. And in addition to being highly desirable, it seems to me, further, that this remedy is merely the working out of an economic law by which the weak and impotent disappear, but with this difference—that in consolidation, the high cost mines would be retained as that reserve necessary for unusual conditions and thus the present conditions of over-development would be changed from a menace to a safeguard for the public.

Feasibility of Consolidations of Mining Properties

There is no question in my mind that consolidations of mining properties are feasible. Nor is there any question that such consolidations are practical and of much benefit to the public. We have only to turn to other industries, such as the steel industry, the oil industry, the woolen industry, the copper industry and many others, to see their practical and beneficial application. Nor are there insuperable obstacles from a financial standpoint, for all things are financially possible that can be demonstrated to be on a sound basis. And it is self-evident that where so many interests are involved that the basis must be financially sound in order to be fair to and have the support of all concerned.

The general method of effecting consolidations should be based on valuations or appraisals made by disinterested parties, such determinations to be arrived at by the same parties with respect to the different properties involved. Each individual should participate in a consolidation in a proportion based upon the relation of his original holdings to the total valuation of the consolidation. Such appraisals should take into account all assets and liabilities, and for this purpose careful consideration would be given to the most intimate details of each unit in any proposed consolidation. When the individuals have been brought together, the basis of consolidation agreed to, and the special needs of each unit provided for, further provisions for the obtaining of working capital and the issuing of securities are matters of detail easily worked out, provided the investing public can be assured that the securities are properly backed up by the holdings of the new company.

Legality of Consolidations of Mining Properties

The financial consolidation of mining properties is then both desirable and practicable. Is it possible under existing law?

I am not a lawyer, but I have been advised and am thoroughly convinced that any ordinary consolidations of mining properties will be perfectly legal, whether under the Federal anti-trust laws or under similar state laws. The fundamental principle of the anti-trust legislation of the United States is that unreasonable restraints on competition will not be allowed. So long as a combination does not become so large that it threatens to stifle competition, so long as it does not indulge in unfair competitive practices, it is not an unreasonable restraint of trade. The bituminous industry is a highly competitive industry with over six thousand independent producing companies. No single company produces so much as 3½ percent of the total production of the country and only a few as much as 1 percent. Under these circumstances consolidation would have to be carried to a far greater degree than geographical conditions would permit in order that competition should be stifled and unreasonable restraint of trade should be produced. Especially where a consolidation or combination will tend to stabilize an industry and promote the public interest, there need be no fear that the consolidation will be forbidden by the courts.

Of course, the particular facts of any intended consolidation should be carefully studied by competent counsel before such consolidation be carried through, but I firmly believe that in practically every case that is likely to arise in the bituminous industry, it will be found that the proposed consolidation is not only legal but so patently legal that no question as to its legality could ever arise.

My conclusions, therefore, as to this phase of the subject are that consolidations of mining properties are highly desirable, perfectly feasible and entirely legal.

Summary

To sum up the entire question then we may say that:

Consolidations of selling agencies are of some benefit and, therefore, desirable; are practical but may be the source of much dissatisfaction; are legal within limits but may be the cause of much investigation and possible litigation.

Consolidations of mining properties, on the other hand, are highly desirable, perfectly feasible and entirely possible under existing law.

HELIUM RESERVE

THROUGH an executive order issued by the President, the nation's first helium reserve has been created in Emery County, Utah.

It is designated as Helium Reserve, Number 1, and consists of 7,100 acres of land in which the greater part of the mineral title is vested in the United States. By the terms of the executive order the reserve is withdrawn from all forms of settlement, location, sale, or entry. Located in eastern Utah, covering the Woodside anticline, a geological structure has been discovered containing valuable deposits of helium-bearing gas.

THE PROBLEM OF COAL DISTRIBUTION

No Coal Shortage Possible—Proper Distribution Of Available Coal Will Eliminate What The Press And The Public Term "Coal Shortages"—Public Itself Creates Conditions Of Which It Complains—Remedy Outlined

By HARRY N. TAYLOR
President, United States Distributing Corporation

THERE never was and there never will be an actual coal shortage in America. The natural coal resources of this country are so broad and cover such an enormous area in twenty-eight states extending from the Atlantic to the Pacific Ocean as to make an actual shortage of fuel impossible. There will always be coal enough to keep the people warm and turn the wheels of industry if the public will do its share towards solving the question.

The troubles that occur from time to time, which are called by the press and public "coal shortages" are not in reality coal shortages, but a failure to properly distribute the coal which is available and the difficulty of meeting a public demand for selection as to size and quality. Invariably the coal operators and the railroads are blamed for these so-called shortages. The facts are that the public itself creates this condition, first, because of its failure to buy coal in a regular manner throughout the twelve months, and, second, by demanding certain sizes of coal which they want provided in a few months of the year, thus bringing on a peak load which taxes the railroad transportation and the producing capacity of the mines for a short period, while the mines and cars are idle for many months each year owing to lack of demand.

The demand on the part of the public for certain sizes of prepared coal in great quantities causes an over-production of the less desirable sizes of coal, and at the same time when the greatest clamor is heard for prepared coal, whether anthracite or bituminous, there is invariably an over-supply of the resulting steam sizes, which are not suitable for household use. These steam sizes must be sacrificed as to price in order that they may be marketed to relieve the congestion at the mines. A failure on the part of the operator to move these sizes promptly would block the mines with loads and stop production entirely.

Necessarily, in order that the operator may have a return on the entire product of his mines that will meet the cost of production and pay a reasonable profit, he is forced to make a higher price for prepared sizes to take up losses he sustains when he sells the steam sizes at less than the cost of production. The higher cost of prepared coal in turn is resented by the purchaser, because the average man thinks only of the price of the coal he actually puts into his home. The fact remains that for every ten tons of coal directly used by the householder to heat his house, there is an additional twelve tons of coal used by the same householder in the form of heat energy necessary to produce the commodities that come into his home through the water pipes, electric light wires, through his kitchen door in the form of artificial ice, transportation and manufacture of the canned goods and products consumed in the home. This class of consumed energy is created from the cheapest sizes of steam coal, which are used by the public utilities creating electricity, pumping, transportation, and the manufacture of these commodities. Therefore, the householder who complains that he is penalized because he has to pay a higher price for his prepared coal for his home use is in reality getting the benefit of the low priced steam coal on the additional coal he uses in the form of heat energy applied to the things he consumes as described above.

Harry N. Taylor

These facts are generally disregarded, inasmuch as the ordinary householder has given no thought to the matter and does not realize that he uses more coal in the form of heat energy through the products consumed in his home than he does for the actual heating of the same household. If the public would fully realize the situation and purchase its coal throughout the year, so that the mines could operate in a more continuous manner, there would be less labor troubles at the mines, as the miners could have more regular employment. There would be sufficient cars to transport the coal used in a year, if they could be employed in a regular manner throughout the year, and the mines can produce all of the coal required if permitted to operate every month.

It is plainly up to the public to cure the coal evil, which can be done if the householder will take his coal in at a time when it is plentiful and can be conveniently stored, public utilities anticipating their wants, storing coal in the dull season as insurance against the rush season, schools and public buildings could be filled up in the summer months rather than to wait until the fall rush when everybody else is in want of coal, and so on throughout the list of consumers.

Careful attention to these facts on the part of the consumers would almost entirely relieve the public of the embarrassment and higher prices caused by spasmodic over-demand for coal.

Sixty-five percent of the 219,000,000 acres of forests in private hands are entirely without fire prevention regulations.

COAL'S POLITICAL PROSPECTS

The Subject Is Ignored By The Congress, Presumably In Order To Raise It In The Campaign—The Political Setting Of Coal And The Issue Concerning It

By GEORGE H. CUSHING

AT first thought, it seems amazing that this whole session of the Congress has passed without anyone giving a serious thought to the coal question. It seems even more amazing that nobody has presented to the Congress a real legislative program for coal. The facts are that, except for an occasional reference to coal—it was thrown in as an illustration of another theme—no real speech has been made on the question.

Last fall, almost any student of Congress would have said that coal was sure to be a live topic. The preceding election had caused such an upheaval that the so-called Progressives—of both parties—clearly held the balance of power. That element in our political life has been mauling "special privilege" for a generation. It has always contended that coal is one of the special privileges. It has contended that it was a mistake for the government ever to have allowed the natural resources to get out of the detailed ownership of the Federal government. It has insisted that, one at a time, the natural resources should be brought back under—to use its own phrasing—the control of the government. When these gentlemen clearly held the balance of power in both Houses, one would naturally suppose that they would seize the rare opportunity to pass legislation to put coal under regulation.

In addition, the Coal Commission, a rather expensive institution, had just made its report. Some of the sections of this report were doled out so late as to indicate that public sentiment was being kept alive until the Congress might meet. It seems to have been the purpose and hope of the Coal Commission to campaign against coal until the eve of the session of Congress. This report came as a climax of eight years of bitter arraignment of the coal industry. Thus, the opening of this session of the Congress looked like the proverbial "psychological moment" for striking at the coal industry. Indeed, the stage seems to have been set especially for such coal legislation as was, seemingly, desired.

It appears to be a bit of a mystery that the whole session of Congress was not engrossed by committee hearings and discussions of the moot coal question. When you understand it, the so-called mystery disappears. For instance, while the Progressives held the balance of power in both Houses of Congress, they held actual power in neither House. Thus, the Progressives could do nothing in their own name and on their own account. If they should have persuaded their Republican brethren to take an action against coal, they might have passed the desired regulation but the Republican Administration would have reaped the political benefit. If they had joined the Democrats to get the legislation through, the Democrats would have taken the political benefit. Thus, the Progressives would have used all of their power and ammunition to help one or the other of the old parties.

On the contrary, it seems perfectly clear that the Progressives have stopped working for others and have definitely gone into business for themselves. Henceforth, they are going to work to build up their own organization. They are saving all of their best ammunition to fire in their own campaign. It will be remembered that it was in the middle of last November—and hence before Congress assembled—that some Progressives met in the St. Paul hotel in St. Paul and outlined the project for the new third party. The attendance was so small that little attention was paid to it. While the press and the public did not, then, take this movement seriously, the Progressives seem to have done so.

At any rate, the Progressives in Congress quickly abandoned coal—knowing that agitation might lead to legislation—and went at once into a thorough and scandalous investigation of the oil business. This had the double effect of reviving an old issue and of discrediting both of the old parties. (The blindness of the Democrats to this maneuver has been rather amusing but that is not properly a part of this story.)

When the oil scandal was at its height and just about the time the people were beginning to sicken of the subject, some of the Progressives—in March—met and arranged that the convention of the third party shall be held in the Twin Cities on May 30. The date of this convention is highly significant. That convention precedes those of both of the old parties. Thus the third party cannot possibly organize as a protest against the action of the old parties. It is a movement distinct and separate from them. This, I believe, is in thorough accord with everything that has been done in Congress this session.

Immediately following the calling of this third party convention, the "Committee of 48," with headquarters in New York, sent out the official call for this convention and outlined the platform of the party.

Public control of natural resources is one of five planks in that platform.

Oil is a natural resource. Starting with the Tarbell articles of twenty-five years ago and ending with the oil scandal in the Senate this spring, oil has been a political question for a generation. The Progressives, apparently, have now decided that it is time to capitalize on all of their attacks upon the oil industry.

Coal is a natural resource. For over thirty years the anthracite industry has been under attack. It has been in the courts most of that time. For the last eight years the bituminous industry has been under attack. Both of these attacks came to a focus in the severe report of the Coal Commission last fall. The Progressives, apparently, believe it is now time to make capital of their long-drawn-out attack upon the coal industry.

My whole theory is that instead of attacking coal and oil in the Congress—and giving one of the old parties credit—the Progressives have decided to make both of them an issue in the coming campaign. I believe they are going to talk, broadly, about the natural resources. I believe they are going to draw all of their illustrations—and hence support—from what they call the "inquitous history" of these two big industries.

The evidence, as I have drawn it, seems conclusive. The purpose, as I view it, is as clear as cleaned window glass. It is not prophetic to say that this will be one of the strong points in the appeal of the new party; it is merely common sense, resting on some little knowledge of practical politics.

With the issue thus brought out into the open, the question which arises is whether it will make any appeal to the people. Those who invariably seek shelter behind the assurance that "the people will not stand for it" will, of course, be disposed to poo-poo the whole subject out of the public forum. They will, with a good deal of common sense, point to the dismal failure of the Shipping Board and the frightful tangle on the railroads as a result of the Com-

(*Continued on page* 230)

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Cherry Blossom Time in Washington

But who can paint
Like Nature? Can imagination boast,
Amid its gay creations, hues like hers?

QUESTION OF GENERAL RATE INVESTIGATION BEFORE CONGRESS

Resolution Considered Directing General Investigation Of Freight Rates—Issues Involved Raised By American Mining Congress Last Year—Transportation Act Repeal Vigorously Opposed

By McK. W. Kriegh

A GENERAL investigation of the rates on basic commodities now seems assured. The House Committee on Interstate and Foreign Commerce is expected to adopt a favorable report on the joint resolution introduced in the House by Representative Hoch, of Kansas, proposing a general investigation by the Interstate Commerce Commission of the railroad freight rate structure as recommended by President Coolidge in his message to Congress. The resolution probably will authorize a special appropriation to enable the commission to undertake the task.

Hon. Homer Hoch

It will be remembered that the American Mining Congress last year petitioned the Interstate Commerce Commission for a general investigation of rates on basic commodities and protested against the decision of the commission to restrict its investigation to the rates on grain and grain products. The commission held that a general investigation was not possible because of insufficient funds and also because too much time would be required to make such an investigation.

Agriculture "the" Basic Industry

Another resolution is pending in the Senate. Senator Smith, of South Carolina, chairman of the Senate Committee on Interstate Commerce, reported a resolution from that committee in which agriculture is declared to be the basic industry of the country. This resolution also declares that it is the policy of Congress to promote, encourage and foster the agricultural industry, in furtherance of which the Interstate Commerce Commission is directed to effect such changes in the general rate structure of the country as will promote the freedom of movement by common carriers of the products of agriculture, including livestock, at the lowest possible rate. In view of the fact that the committee voted a favorable report on this resolution, it appears that the members of the committee think that agriculture is the only "basic" industry in the country.

The issues presented in the petition of the American Mining Congress to the Interstate Commerce Commission therefore are now before Congress in the form of the two resolutions mentioned, and it will be decided shortly whether there shall be a general investigation of rates or whether the commission shall inquire only into the rates on products of agriculture as it is doing at the present time. The attitude of members of the House of Representatives who are considering the matter indicates that they consider a general investigation desirable.

Hoover Defines "Primary" Commodities

Secretary of Commerce Hoover appeared before the House Committee and discussed the relationship of less-than-car-load rates and class rates to rates on "primary" commodities, and reiterated what he has said before that class rates are unduly low as compared with rates on "primary" commodities. He said that the commission had undertaken a study of this question sometime ago, and that the purpose of the Hoch resolution was to assure an adequate study. He defined "primary" commodities as embracing the products of mines, agriculture and forests. In outlining the views of the President with reference to the rate situation, Mr. Hoover said that the President was aware of the rate inequities that exist in the present structure, particularly those which have caused the dislocation of industries.

The House committee also heard Mr. Hoch, who emphasized the need for a reorganization of the rate structure. He said his resolution does not contemplate the fixing of any rates below the cost of service, but that such changes as the commission might decide upon should be made with due regard to all the factors involved. He said further that the commission should give more consideration to the factor of the value of commodities over a period of years and to take into consideration to a greater extent than it does now the development westward of industries.

It was developed in the hearings that the commission had gone deeply into the matter of rates on basic commodities, although no report of the findings had been made public, and had reached the conclusion that if those rates were reduced to the extent necessary to afford material relief, the volume of other traffic was not sufficient to yield the carriers a fair return. Secretary Hoover stated in this connection that he was almost prepared to advocate increases in less-than-carload and class rates in order to get relief on "primary" commodities.

Commission Opposes Investigation

Commissioner Esch appeared for the commission. He said that many rate reductions had been made voluntarily by the carriers, and that these reductions were possible because of wage cuts, efficient management and increased volume of traffic. He offered the following conclusions to the committee:

"First, that, with the possible exception of agriculture, the commission's practical experience in dealing with rates and transportation problems in the past two years does not indicate any general demand or necessity for a general important or sweeping readjustment of rates, either as between the various commodities or classes of traffic, or as between sections or communities;

"Second, that a general investigation of all rates along lines suggested by the resolution would be a colossal task, involving hearings lasting many months, requiring several years to complete, and involving considerable expenditure beyond that currently being disbursed;

"Third, that while the present rate structure has the appearance of being more or less haphazard, and to some extent is haphazard, existing rates are in fact nearly all based upon the practical judgment of trained traffic men of the railroads, regulated to some extent by state and national authorities, on the whole designed to meet commercial conditions and encourage the free flow of commerce and competition as between industries and sections. The whole business structure has been built up under the rates as they have existed, and millions of dollars have been invested thereunder, and a general overhauling is bound to cause apprehension, complica-

tions and perhaps have a disturbing effect upon business."

Need for Readjustment Admitted

Commissioner Esch also informed the committee that the fact that 14,000 formal complaints have been filed with the commission since 1906 and that approximately one thousand new complaints are filed annually, indicates that there must be numerous rates that need readjustment. He said that "the process which the commission has been following of dealing with complaints as they arise and instituting investigations upon its own motion only where there has appeared to be considerable demand or necessity therefor, unquestionably in the long run is a slower process of arriving at the goal of a more satisfactory general rate adjustment that now exists, than would result from the adoption of the resolution, provided the commission is furnished with the funds and facilities to proceed under it with reasonable dispatch. Indeed, in the long run, the plan suggested in the resolution might actually cost less."

The Interstate Commerce Committee of the Senate also held hearings on the rate situation. Many representatives of both shippers and carriers appeared in opposition to the repeal of section 15a, the so-called rate making section of the Transportation Act. S. T. Bledsoe, general counsel of the Atchison, Topeka & Santa Fe Railroad, told the committee that freight rate reductions made by class one carriers since 1921 have totaled $993,866,790. He said that in the western district alone the reduction approximated $420,138,862, and that these reductions were made when the carriers were earning less than a fair return.

Carriers Improving Service

The carriers are continuing their program for securing the utmost efficiency in the transportation service. The car service division of the American Railway Association reports that surplus freight cars in good repair and immediately available for service totaled 278,724 on April 7, including 159,438 coal cars, 87,378 box cars, 18,643 stock cars and 7,451 refrigerator cars. The railroads on April 1 had 4,648 serviceable locomotives in storage ready for immediate service whenever traffic conditions warranted.

In view of the voluntary action of the carriers in reducing rates whenever revenues make reductions possible, and their apparent desire to cooperate with shippers in securing the highest degree of efficiency in transportation service that is possible of accomplishment, shippers are joining with the roads in protesting to Congress against any amendment of the Transportation Act at this time. It seems to be the consensus of opinion that if Congress will let the present laws and agencies created under those laws function for a few years more, stability of regulation and stability of railroad conditions will be realized.

Rate Reduction Not a Cure-All

Howard Elliott, chairman of the board of the Northern Pacific Railroad, summed up the situation in language that apparently conforms to the views of most of individuals and agencies that have studied the transportation service during the last two years. He said: "The railroad system of the United States * * * ought not to be used as a carrier and a cure-all for the economic troubles of the country. These economic troubles cannot be cured by reducing rates so that the railroads are crippled and conditions created that may force government ownership to which this country is opposed. In the long run it will not help agriculture, industry and commerce to starve the railroads so they cannot give service."

It is from this standpoint that the House Committee on Interstate and Foreign Commerce is approaching the subject of rate readjustments in its consideration of the Hoch resolution. It is believed by many of the members of this committee that constructive action is possible only through a thorough study of the rate structure by the Interstate Commerce Commission. If it is possible for certain classes of traffic to bear a greater portion of the transportation burden without injury to those classes whereby rates on "basic" commodities can be lowered without impairment of the carriers' revenues, it is believed this would be disclosed by a general investigation, whereas unless such an investigation is made no one can say with certainty that any method of readjustment would produce beneficial results for either carriers or shippers.

Mining Congress Urges Study

In its petition last year to the commission, the American Mining Congress urged such a study, but contended that rates on raw or basic materials, as the beginnings of all traffic, should be fixed at a level that would permit the utmost development, volume of movement, and utilization of the raw products of the basic industries; that the stimulation of business resulting from such a policy; particularly an increased volume of fabricated, refined, or finished products which are transported at higher rates (frequently several times over before reaching the ultimate consumer), would add to the earnings of the railroads instead of reducing them.

Members of the commission contend that a reduction on rates on a "primary" or "basic" commodity and an increase in rates on the manufactured products thereof, might actually result in a net increase in transportation costs to the consumer. Whether this conclusion is sound, or whether, on the contrary, the American Mining Congress is right, would be determined by the proposed investigation without injury to the railroads or to the consuming public.

The theory that lower rates on basic materials will serve to prolong the life of the basic industries, make possible the utilization of a greater volume of their raw materials, and promote operations in idle communities whereby both inbound and out-bound freight and passenger traffic are stimulated, seems to have the best of the argument thus far. Favorable action on the Hoch resolution is expected.

SEEK NEW USES FOR SLAG

BETTERMENT of present methods of utilizing the slag produced as a waste product of blast furnaces and research looking toward the development of new methods of using it were discussed at a conference of the National Slag Association held at the Bureau of Standards, Department of Commerce, recently. In addressing the conference P. H. Bates, of the Bureau of Standards, called attention to the fact that slag is now used in Europe for making "Eisen Portland cement," which consists of about 35 percent of ground slag and 65 percent of Portland cement. He expressed the opinion that such use would ultimately develop in this country. Eisen cement is nearly as strong as Portland cement, he stated, and is also thought to be more resistant to attack by sea water and by alkali.

Following Mr. Bates, J. C. Pearson, chief of the bureau's cement section, told the conference about tests made at the Bureau of Standards on the properties of concrete in which slag is used as aggregate. The bureau finds that if the usual proportions are adhered to the concrete made with slag is less workable than that made with gravel, and is not so easily handled, but this difficulty can be avoided by using a larger proportion of sand. Strength tests are now under way, and results are expected by the middle of the month. The slag concrete is found to fill about 6 or 7 percent less space for the same volume of aggregates as compared with gravel concrete, Mr. Pearson stated.

There are 20,000,000 tons of slag produced annually in the United States, Mr. Pearson said, and it sells for a small fraction of a cent per pound. It is usually not handled by the steel industry, but is sold by them to independent concerns who make it into useful products.

SENATE FINANCE COMMITTEE REPORTS TAX BILL

Mellon Surtax Rates Restored—Capital Stock Tax Eliminated—Corporation Rate Of Tax Increased—Tax Committee Amendment Under Consideration

THE Senate Finance Committee reported the tax bill to the Senate with the surtax rates fixed at a maximum of 25 percent as originally recommended by Secretary Mellon. This is expected to precipitate a long debate which eventually will end in a compromise between the opposing factions. The belief is growing that lower surtaxes will produce larger revenues.

The repeal of the capital stock tax has been recommended by almost every line of business. Its repeal was asked in a resolution of the 26th Annual Convention of the American Mining Congress. It has been the source of great annoyance to corporate enterprises, and the fact that the loss in revenue occasioned by its repeal will be made up by the increase in the corporation income tax rate will not cause taxpayers generally to disapprove the Finance Committee's action.

The Committee approved the recommendation of the American Mining Congress that corporate distributions from depletion reserves based on discovery value of mines should be treated as capital distributions to the amount of the capital invested by each stockholder, instead of being taxed as ordinary dividends. Under the amendment adopted by the committee, amounts distributed from discovery depletion reserves of mines in excess of the stock basis would be treated as capital gains.

The American Mining Congress also urged that a new provision be added to the depletion clause—Section 204 (c)—to stimulate discovery of new mineral deposits and prevent their use to reduce the depletion rate already allowed the taxpayer who makes the discovery. The matter will be considered by the Senate. The proposed amendment is justified by the American Mining Congress on the grounds that it will clarify the law, stimulate the mining industry, and thus will operate to accomplish what Congress originally intended—the discovery and development of new mines.

The brief submitted by Paul Armitage, Chairman of the Tax Committee and McK. W. Kriegh, Chief of the Tax Division, on behalf of the American Mining Congress, points out how the discovery clause has been administered in such a manner as to actually injure the mining industry. The following is quoted from the brief:

"The proposed amendment adds to subdivision (c) of Section 204 at the end thereof the following words: *"Discoveries shall include minerals discovered or proven in an existing mine or mining tract by the taxpayer after February 28, 1913, not included in any prior valuation."*

"It is self-evident that, if a provision of law intended to moderate taxes, already excessive, is so construed as to increase such taxes in many cases, it acts not as a stimulant but as a depressant to industry. Yet such is the effect of the discovery clause in the Revenue Acts of 1918 and 1921 as construed and applied by the Bureau of Internal Revenue. The intention of Congress was that this discovery clause should extend to all taxpayers who found new or valuable ore deposits. It is not so construed or applied by the Bureau.

"Owing to the strict interpretation placed on this clause as applied to mines, the intention of Congress to stimulate the industry has been in a great measure defeated. The discovery clause is strictly limited to *new* ore deposits in *new* mines. All discoveries of deposits in *existing* mines are excluded.

"After the enactment of Revenue Law of 1918 the mining industry claimed that the word "mines" in the discovery clause should be taken in the sense of substantial deposits of commercial mineral; that it did not require the opening up of a new mine in every case to obtain the benefit of the discovery clause; but that it applied to an existing mine in which a new deposit was found. This was a reasonable and intelligent construction of the law and made it accord with the intention of Congress.

"The Bureau, however, ruled otherwise and held that a discovery must add a new mine to those already existent—in other words, that there could be no discovery by a taxpayer unless a new deposit was found by him in virgin territory. The effect of this ruling was so to circumscribe the law that it applied only to the few cases where discoveries were made in tracts where no mining had occurred. All other discovered deposits were denied the benefit of this provision.

"We understand that under this interpretation hardly a dozen discoveries have been allowed.

"But Congress intended to encourage discovery of new ore deposits. It was ore deposits that the country needed whether found in tracts that had already been mined or otherwise. Under the Treasury ruling this purpose has been defeated. And the matter has not stopped here.

"The Bureau of Internal Revenue has actually turned the discovery clause in many cases to the injury of the mining industry which it was designed to protect. It has ruled, not only that new deposits in existing mines may not be added to the value for depletion, but holds that such newly discovered ore deposits to the amount of contained units must be used to diminish the depletion rate otherwise allowed to the taxpayer under the law. An illustration:

"A taxpayer buys for $50,000 an existing mine. Its value on March 1, 1913, is $100,000; its contents by estimate, one million units. Under the regulations the taxpayer is allowed a depletion rate for each unit as mined of $100,000 divided by a million units or ten cents per unit. Suppose now the unfortunate taxpayer in his hunt for new ore reserves discovers an additional deposit (not included in "proved or probable" ore in 1913 value.) The new deposit contains an additional million units and is valued at $100,000. Under the ruling of the Bureau of Internal Revenue this additional value is not added to the depletion base. Contrariwise, the additional million units are added to the divisor in the computation, thus cutting the taxpayer's depletion rate of ten cents in the original computation to five cents (see Regulations 62, paragraphs 208 and 219.) And so the provision that Congress intended to act as a stimulant to the industry has been turned into a weapon for its confusion and injury.

"The mining industry at present is at a low ebb and needs aid. Never before in its history has the mining industry been in greater need of stimulation and relief from burdensome taxation. Owing to high costs, and low prices, profits are reduced to a minimum. Foreign competition with low labor costs and exemption from taxation continually operate to drive domestic prices down. Over-production induced by the Government during the war has left the industry with top-heavy plant investments and mines stripped of the richest and most profitable ores. The loss of foreign markets and excessive state taxation accentuate the plight of the industry.

"The character of mining in this country has changed fundamentally in the last decade. New reserves are not found through outcroppings on the surface, but after extensive operations conducted in existing mines at extraordinary depths and great cost.

"Discoveries under these conditions constitute the main sources of new supply. They should be rewarded—not penalized."

Legislative Review

Sixteen Investigations On In House And Senate—Fifty Senators Engaged In Inquiries—Calcium Arsenate Purchase Defeated—Tax Bill Before Senate—Blue Sky Bill On Rocks—Mining Claims Involve Charges—Alaskan Mine Development

ELEVEN committees of the Senate and five committees of the House are now engaged in "Investigation." Fifty of the ninety-six members of the Senate are serving on some investigating committee, while fourteen of these members are serving on two committees.

Senate committees are investigating: (1) Naval oil leases. (2) Department of Justice. (3) Indictment Senator Wheeler. (4) Right of Senator Mayfield to his seat. (5) American activities of Soviet Government. (6) Treasury Department Revenue Bureau. (7) Propaganda for Mellon tax plan, Bok peace prize, etc. (8) Land frauds. (9) Medical Diploma Mills. (10) Veterans Bureau. (11) Sale of fur seal skins by government.

House committees are investigating: (1) Charges against two members of House. (2) Operation of Army Air Service. (3) Shipping Board. (4) Bureau of Engraving and Printing. (5) Expenditures Department of Agriculture.

Among the committee changes in Congress was the appointment of Representative O'Connor, Democrat, Louisiana, to the Committee on Rivers and Harbors, which is considering legislation to prohibit discharge of oil or other refuse from mines, etc., into navigable streams.

The House recently considered, but reached no conclusion on the Denison blue sky bill, H. R. 4. Mr. Denison urged its passage and the opposition was led by Representative Ramseyer, Republican, Iowa, on the ground that it would interfere with the operation of postal laws. The bill was favored by Representative Hill, Democrat, Maryland, but opposed by Representative Blanton, Democrat, Texas, on the ground that it exempted large stock exchange securities, among which he named the American Zinc.

Application of the law was resisted by western congressmen, led by Representative Colton, Republican, Utah, who said that the bill would operate against small stock exchanges and new securities. He referred to the twenty-five years existence of the mining exchange in Utah, stating that this institution would be required to secure permission from each state to sell its securities. Representative Leatherwood, Republican, Utah, also opposed the

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legislation on the ground that it operated against western mining. He denied that mines are fraudulent, and asserted that the bill would strike a blow at the mining industry.

Mr. Denison, in reply, stated he had sympathy for prospectors, but recited the case of an Atlanta widow who had lost an inheritance of $10,000 in stock in a fake gold mine. He denied that any honest proposition would be injured by the bill. Mr. Leatherwood, in rebuttal, said that the bill would not protect the class of people who invested in gold stock as mentioned by Mr. Denison. Representative Begg, Republican, Ohio, stated that three recent stock swindles in Ohio had involved stock listed on stock exchanges, and that the elimination of stock exchanges from the bill would not protect the public.

Representative McKeown, Democrat, Oklahoma, opposed the legislation, and offered an amendment striking out that part of the bill specifically applying to mining stocks, but it was defeated. He thought the bill stifled oil and gas production, and would benefit the Standard Oil Company, which he says does not prospect, but buys oil lands and then sells stock based thereon.

Representative Leavitt, Republican, Montana, also opposed the bill on the ground that it would discriminate against western mining. He offered an amendment to strike from the bill the provision exempting stock exchanges from its application, and it was adopted. At this point the House adjourned for the day and as this bill is only subject to consideration on calendar Wednesday, its further discussion was postponed to a later date. As the exemption of stock exchanges was one of the important features of the bill and its striking out opposed by Mr. Denison and others on the Interstate Commerce Committee, which drafted the measure, it is uncertain whether they will further press the bill.

Mining Claims

Charges were made by Representative Cramton, Republican, Michigan, that Senator Cameron, Republican, Arizona, was blocking development of the Grand Canyon National Park by unlawfully holding mining claims adjacent to the park and its entrances, notwithstanding court action had nullified some of the mining claims. Mr. Cramton submitted correspondence from the Interior Department requesting the Department of Justice to compel Senator Cameron to comply with court decisions evicting him from these claims, and also action by the Interior Department, at Senator Cameron's request, postponing until after Congress adjourned, consideration in Arizona of questions involving other mining claims. Senator Cameron denied that he had any interest for many years prior to creation of the park in 1919 in mining claims, title to which is subject to litigation by the government. The Senator states that he had built a trail around the park for mining purposes and for thirteen years had shipped ore to an El Paso smelter from mines in the Canyon. The Department of Justice has referred to the United States attorney at Tucson the failure of Senator Cameron and others to comply with court decrees against them in cases involving these contested mining claims.

Alaskan Mining

Failure of the government to develop Alaskan coal resources was the subject of debate in the House. Representative Sherwood, Democrat, Ohio, the oldest member of Congress, who voted for construction of the Alaskan Railroad many years ago, said that when the railroad was authorized immense coal fields were said to exist in that territory, and he desired information as to whether any coal had been mined. Representative Byrns, Democrat, Tennessee, stated that some coal was being mined but not the amount which had been anticipated at the time construction of the railroad was authorized. Representative Raker, Democrat, California, said that a tract had been reserved for naval coal and its development started, but that a year

IMPORTANT BILLS REVIEWED IN THIS ISSUE

MINING—
S. 2797: Oddie (R.), Nev. War Minerals.
H. R. 7696: Sutherland (R.), Alaska. Mine Timber.
S. 3005: Ladd (R.). N. D. Potash Development.
S. 3047: Sheppard (D.), Tex. Potash Survey.
S. Res. 202: Ashurst (D.), Ariz. Mine Labor.
H. J. Res. 142: Brumm (R.), Pa. Mine Assessment.
H. R. 8335: Eagan (D.), N. J. Coal Regulation.

TARIFF—
H. R. 7791: Frear (R.), Wis. Coal Tar Duties.

TAXATION—
H. R. 6715: Green (R.), Iowa. Revision Bill.
H. R. 6901: Enacted Into Law—Credits and Refunds.
S. Res. 185: Passed by Senate—Tax Returns.

LABOR—
H. R. 7959: Child Labor.

IMMIGRATION—
H. R. 7995: Johnson (R.), Wash. Restriction of Aliens.
S. 2576: Reed (R.), Pa. Restriction of Aliens.

TRANSPORTATION—
S. 3070: Howell (R.), Nebr. Rate Reduction.
S. Res. 199: Dill (D.), Wash. Rail Valuation.
S. 1499: Steel Cars.

ago it was stopped without cause or excuse. He said that Alaska coal lands should be developed to afford traffic for the railroad. Representative Schneider, Republican, Wisconsin, said the natural resources of Alaska were being given to private interests, which was denied by Mr. Raker. Representative Snyder, Republican, New York, observed that there would be no need of developing coal in Alaska as the navy is discontinuing its use in favor of oil. Mr. Raker wanted the facts as to why the government stopped development of coal and other natural resources in Alaska. Mr. Sherwood said tests had shown that the coal was not suitable for naval use as it contained too much sulphur. Delegate Sutherland, Republican, Alaska, in committee, charged that influences are at work to prevent development of natural resources in Alaska. He asserted the Alaska coal was superior to Pocahontas coal of West Virginia, but that naval officers who took no part in tests of the coal had reported against its availability for naval use.

Department of Mines

Senator Oddie, Republican, Nevada, intends to introduce a new bill creating a Department of Mines, which would regulate the coal industry. The creation of a Department of Mines was referred to in the Senate during eulogies on the late Senator Nicholson, Republican, Colorado. Senator Sheppard, Democrat, Texas, referred to the address of Senator Nicholson in October, 1921, before the convention of the American Mining Congress at Chicago on the need of the mining industry for cabinet representation through a Department of Mines. Senator Sheppard also reviewed the advocacy by Senator Nicholson of a tariff on manganese, magnesite and graphite.

Southern Congressmen were unsuccessful in their effort to obtain in the Senate a favorable vote on the proposal of Senator Harris, Democrat, Georgia, to appropriate ten million dollars for the purchase and sale by the government of calcium arsenate and nitrate of soda. The Senator is renewing his efforts, and has proposed the appropriation as an amendment to the agricultural appropriation bill, to be later considered. The Senator also proposed an appropriation of one hundred thousand dollars to exterminate the cotton boll weevil, which would include investigations of processes for the manufacture of calcium arsenate.

Silver has ceased to circulate as trading medium, causing unusual demand for one dollar paper bills, according to Representative Madden, Republican, Illinois, in debating the Treasury Department appropriation bill, carrying mint funds, which has become a law.

The following bills have been introduced:

MINING

War Materials

S. 2797. Introduced by Mr. Oddie (Rep., Nev.). Passed by the Senate. This bill proposes to appropriate two and one-half million dollars to pay War Mineral claimants on account of the original appropriation of eight and one-half million dollars having become exhausted.

H. R. 6483. Passed by the House and Senate. It provides that mineral interests in Osage Indian lands in Oklahoma held by others than Indians may be sold, assigned or transferred under regulations of the Interior Department.

S. 2315. This is similar to the foregoing, and has been passed by the Senate.

H. R. 7696. Introduced by Mr. Sutherland (Rep., Alaska). Referred to the Committee on Public Lands. It authorizes the Interior Department to permit the use of timber upon public lands in Alaska by individual miners, and prospectors for minerals, and others, for fire-wood, fencing, building, mining, prospecting, and domestic purposes.

Potash Development

S. 3005. Introduced by Mr. Ladd (Rep., N. D.). Referred to the Committee on Agriculture. It proposes to promote the mining of potash on public lands through permits and leases. Permits would be issued for two years for two thousand five hundred and sixty acres to each applicant, except on lands adjoining Searles Lake, California, which may be operated or leased by the Interior Department. If a prospector discovers potash he may be given a lease upon which he shall pay a royalty of 2 percent of the potash produced. On lands which are known to contain potash, leases of two thousand five hundred and sixty acres each may be granted at the same royalty and a rental of twenty-five cents per acre for the first year; fifty cents for the second, third and fourth years, and one dollar per acre for each succeeding year.

S. 3047. Introduced by Mr. Sheppard (Dem., Tex.). Referred to the Committee on Agriculture. It proposes to appropriate $550,000 for the year ending June 30, 1925, and a like amount for each succeeding year for four years, for investigations by the Geological Survey and Department of Agriculture Bureau of Soils to determine the location and extent of potash deposits in the United States, and new and improved methods of recovering potash from other substances. Before undertaking drilling operations the Interior Department shall contract with owners

or lessees of mineral rights involved, to the effect that should commercial amounts of potash or other valuable minerals be discovered, the government shall be reimbursed for not more than the cost of exploration. The contract shall not restrict the department in choosing drilling locations within the property or in conducting exploratory operations so long as they do not interfere with the use of the surface of the land and the government shall not be liable for damages on account of its reasonable use. Before drilling, owners of land within ten miles of the proposed well, shall, in consideration of the increased value to their land incident to discovery of potash, and to prevent profiteering, be required to make an agreement naming the Interior Department as referee in determining the maximum price at which potash rights of such land may be sold. Purchasers of such rights shall be required to agree that potash obtained by them shall be marketed at a price not exceeding a maximum fixed by the department. The government will collect 10 percent per annum from net profits of sales until it is repaid for expenses in connection with exploration of deposits. The bill states that this country is dependent on Germany for 90 percent of potash and that the United States should develop its own potash supplies, and nitrates. The Geological Survey is quoted to the effect that underground potash deposits exist in the southwestern section of the country in quantity comparable in nature and amount with German deposits. Potash traces have been found from drill cuttings at several points, and it is possible to make exploration drilling over from two hundred to three hundred miles to ascertain horizons at which potash occurs, its thickness, richness and extent of deposits. The Bureau of Soils is quoted as saying that extensive sources of potash exist among waste materials of cement mills, blast furnaces, and natural raw materials, including the greensands of New Jersey, the leucites of Wyoming, the alunites of Utah, and the natural brines of Nebraska, Utah and California. Their recovery is possible through practical processes and the technology of manufacture, to yield potash of purity and quantity at a price to supplant the foreign commodity on the American market. The Survey estimates that drilling for potash in the natural state would require $2,500,000. The Bureau of Soils estimates that $250,000 would be required to conduct chemical and engineering researches of processes for recovering potash from other substances.

S. Res. 202. Introduced by Mr. Ashurst (Dem., Ariz.). Referred to the Committee on Labor. It calls on the Department of Labor for a report as to the number of Mexicans admitted into the United States during the year ending March 31, 1924, based on reports of large importation of Mexican labor by mining and other companies, including one thousand five hundred by the New Jersey Zinc Company, five hundred by an Illinois smelter, and three hundred by the Bethlehem Steel Company.

H. J. Res. 142. Reported by the Committee on Mines and Mining. It proposes to suspend for three years, beginning July 1, 1923, the requirement of annual assessment work on carnotite or other radium-bearing ore mining claims.

Coal Regulation

H. R. 8335. Introduced by Mr. Eagan (Dem., N. J.). Referred to the Committee on Interstate Commerce. It proposes to regulate the anthracite coal industry by a bureau in the Interstate Commerce Commission, and is similar to the Treadway bill, previously reported.

S. 2917. Introduced by Mr. Pittman (Dem., Nev.). Referred to the Committee on Banking. It directs the Treasury Department to complete purchases of silver under the Pittman act to cover allocations of silver which were subsequently revoked. If the bill is passed, it will provide for the purchase of approximately eleven million ounces of silver at one dollar per ounce.

Mineral Lands

H. R. 2887. Passed by the House. It provides that the production of oil, gas and other minerals on restricted lands of the Kaw Indians may be taxed by Oklahoma.

H. R. 3852. Passed by the House. It provides for twenty-five-year leases for oil, gas, coal and other minerals on lands of the eastern band of Cherokee Indians in North Carolina.

S. 2798. Passed by the Senate and reported by the House Indian Committee. It authorizes leases for oil on lands in the Kaw Indian reservation in Oklahoma.

S. 2314. Reported by the Committee on Indian Affairs. It provides for leases on unalloted lands for oil and gas for a period as long as those minerals are found in paying quantities.

H. R. 6298. Reported by the Indian Committee. This is similar to the foregoing.

H. R. 7220. Amendment to, introduced by Mr. Harris (Dem., Ga.). It appropriates $100,000 for extermination of the cotton boll weevil, including investigations of processes for the manufacture of calcium arsenate and other poisons.

S. 2710. Introduced by Mr. Dial (Dem., S. C.). Referred to the Committee on Agriculture. It proposes to use one hundred and fifty million dollars, held by the Alien Property Custodian, to finance the exportation of raw materials and agricultural products from the United States.

H. R. 7498. Introduced by Mr. Lowrey (Dem., Miss.). This is similar to the foregoing.

TARIFF

Revision Bills

H. R. 8463. Introduced by Mr. Crisp (Dem., Ga.). Referred to the Committee on Ways and Means. It proposes to place ammonium sulphate on the free list.

H. R. 7791. Introduced by Mr. Frear (Rep., Wis.). Referred to the Committee on Ways and Means. It proposes to amend the tariff duties on coal-tar products. Mr. Frear made a speech in the House charging that the present law operated as an embargo against imports, contrary to the intent of Congress, and the purpose of his bill is to remedy this condition.

TAXATION

Revision Bill

H. R. 6715. Reported by the Senate Finance Committee. This is the tax revision bill, previously passed by the House.

Senator Brookhart (Rep., Iowa), introduced an amendment to this bill to reimpose the excess profits taxes. The amendment provides that in the case of any corporation engaged in the mining of gold, the portion of the net income derived from the mining of gold shall be exempt from the tax imposed by this title or any tax imposed by Title II of the Revenue Act of 1917, and the tax on the remaining portion of the net income shall be the same proportion of a tax computed without the benefit of this subdivision which such remaining portion of the net income bears to the entire net income.

It also provides that in the case of a bona fide sale of mines, oil or gas wells, or any interest therein, where the principal value of the property has been demonstrated by prospecting or exploration and discovery work done by the taxpayer, the portion of the tax imposed by this title attributable to such sale shall not exceed 20 per centum of the selling price of such property or interest.

Credits and Refunds

H. R. 6901. Enacted into law. It amends Section 252 of the Revenue Act regarding credits and refunds by providing as follows: "That if the taxpayer has, within five years from the time the return for the taxable year 1917 was due, filed a waiver of his right to have the taxes due for such taxable

year determined and assessed within five years after the return was filed, or if he has on or before June 15, 1924, filed such a waiver in respect of taxes due for the taxable year 1918, then such credit or refund relating to the taxes for the year in respect of which the waiver was filed shall be allowed or made if claim therefor is filed either on or before April 1, 1925, or within two years from the time the tax was paid."

H. R. 655. Passed by the House and Senate. It provides for a tax of two cents per gallon on gasoline sold in the District of Columbia.

S. J. Res. 74. Introduced by Mr. Frazier (Rep., N. D.). Referred to the Committee on Finance. It provides that congressmen and government employees receiving more than $3,000 yearly salary shall file with the Federal Trade Commission a statement of their ownership, if any, within the past ten years of mining, oil or other stock. It is based on the fact that legislation pending in Congress affecting taxation on mining and oil may conflict with their investments.

S. Res. 185. Passed by the Senate. This resolution requested the President to transmit to the Public Lands Committee the income tax returns of Harry F. Sinclair and E. L. Doheny, together with those of their oil companies, in connection with the oil lease investigation. The President refused to comply, but issued an executive order authorizing the Treasury to permit examination of tax returns by committees of Congress on order of either House.

H. R. 7959. Reported by the Senate Finance Committee. This is the soldier bonus bill which provides twenty-year insurance policies for World War veterans, previously passed by the House.

LABOR

Child Labor

H. J. Res. 184. Reported by the Committee on Judiciary. It proposes an amendment to the Constitution giving Congress power to limit, regulate and prohibit the labor of persons under 18, but does not impair similar powers of the states, except that the operation of state laws shall be suspended to the extent necessary to give effect to legislation enacted by Congress. The bill was reported by Representative Foster (Rep., Ohio), and a minority report was made by Representatives Graham (Rep., Pa.); Montague (Dem., Va.); Dominick (Dem., S. C.), and Weller (Dem., N. Y.). The minority report contends that the care of children, including their labor and education, is under their parents, and that such legislation restricting the labor of children is unnecessary, and an invasion of private and state rights.

POWER

Natural Resources

H. R. 518. Passed by the House. It provides for the lease to Henry Ford of the Muscle Shoals, Alabama, nitrate and power projects.

Springs Fads and Fashions — *Washington Star*

H. R. 8209. Introduced by Mr. Denison (Rep., Ill.). Referred to the Committee on Interstate Commerce. It proposes to create an inland waterways corporation to promote transportation by water.

S. 2886. Introduced by Mr. Jones (Rep., Walsh.). Referred to the Committee on Commerce. It amends the Federal water power act concerning development of water power on public lands.

IMMIGRATION

Restriction Bill

H. R. 7995. Introduced by Mr. Johnson (Rep., Wash.). Passed by the House. This is the third draft of the immigration restriction bill, and supersedes previous bills on the subject.

S. 2576. Introduced by Mr. Reed (Rep., Pa.). This is similar to the foregoing, and is now being considered by the Senate with a view to its passage.

TRANSPORTATION

Rail Rates

S. 3070. Introduced by Mr. Howell (Rep., Nebr.). Referred to the Committee on Interstate Commerce. This proposes to reestablish competition in railroad transportation rates which was in effect prior to the increase in rates in 1920, by limiting the powers of the Interstate Commerce Commission to establishing and prescribing maximum rates only, with certain exceptions.

H. R. 8052. Introduced by Mr. Hammer (Dem., N. C.). Referred to the Committee on Interstate Commerce. It provides for the repeal of the transportation Act.

S. 2327. Introduced by Mr. Gooding (Rep., Idaho). Reported by the Committee on Interstate Commerce. It amends the transportation act by forbidding railroads from charging more for the transportation of freight or passengers for a shorter than for a longer distance, otherwise known as the long and short haul clause.

S. Res. 199. Introduced by Mr. Dill (Dem., Wash.). Passed by the Senate. It directs the Interstate Commerce Commission to report to the Senate the assessed valuation, on a 100 percent basis, as used for taxation purposes, of the railroads of the country. It is intended by this means to arrive at a fair value of the railroads for rate-making purposes.

S. 1499. Reported by the Committee on Interstate Commerce. This bill would forbid the use of other than steel or steel underframe cars between cars of such construction in the passenger service.

H. R. 7822. Introduced by Mr. Griest (Rep., Pa.). Referred to the Committee on Interstate Commerce. It prescribes regulations for the transportation of what are described as dangerous caustic or corrosive acids, alkalies and other substances, including sulphuric acid, silver nitrate, etc.

S. 2982. Introduced by Mr. Pittman (Dem., Nev.). Referred to the Committee on Interstate Commerce. It would give authority to railroads to extend their lines, by providing that they may construct new lines within states or abandon their operation without securing certificate of convenience and necessity from the Interstate Commerce Commission, as now required.

H. R. 7462. Introduced by Mr. Newton (Rep., Minn.). Referred to the Committee on Interstate Commerce. It amends the transportation act concerning the construction of new lines of railroad.

H. R. 7464. Introduced by Mr. Newton (Rep., Minn.). Referred to the Committee on Interstate Commerce. This is similar to the foregoing.

H. R. 7820. Introduced by Mr. Hud-

dleston (Dem., Ala.). Referred to the Committee on Interstate Commerce. It amends the transportation act concerning rate-making and railroad valuation.

Miscellaneous

S. 684. Passed by the Senate and House. It provides for the coinage o five million fifty-cent pieces in commemoration of the Confederate Memorial on Stone Mountain, Georgia, and in memory of the late President Harding.

H. R. 6202. Passed by the House. It appropriates twenty-five million dollars to aid in construction of private merchant marine vessels, and twenty-five million dollars to equip vessels o the Shipping Board with Diesel engines.

S. 2927. Introduced by Mr. McKellar (Dem., Tenn.). Referred to the Committee on Judiciary. It proposes to limit the liability of the government in cases of breached, terminated, or suspended war contracts by providing as follows: "That in no case where suit is or has been brought by a contractor against the United States for damages on account of losses alleged to have been sustained by reason of breach, termination, or suspension by the United States of any contract or agreement, expressed or implied, entered into for the prosecution of the World War, shall any judgment rendered by any court of the United States include anticipated or prospective profits on the undelivered portion of said contract."

H. R. 7493. Introduced by Mr. Wood (Rep., Ind.). Referred to the Committee on Judiciary. It proposes to consolidate the purchase of supplies by the government in a general supply committee.

S. 2679. Introduced by Mr. Ernst (Rep., Ky.). Referred to the Committee on Patents. This bill provides for trademark registration.

S. 78. Passed by the Senate. It authorizes the Raritan Copper Works to sue the government for damages to one of its barges caused by a collision with a government transport in New York harbor in 1919.

Edward S. Brooks, vice president and general manager of the Union Pacific Coal Company, died at his home, Rock Springs, Wyoming, on Monday, March 17. Mr. Brooks started his career as a fireman with the Denver and South Park Railway in the spring of 1880. He first entered the coal industry as salesman for the Union Pacific Coal Company at Omaha, Nebraska, with which company he remained until his death. Mr. Brooks served as state chairman for the Wyoming Branch of the Industrial Cooperation Division of the American Mining Congress.

ALASKAN MINING DEVELOPMENT

MEMBERS of Congress are impatient over the failure to develop coal in Alaska. When the construction of the Alaskan Railroad was authorized years ago, one of the arguments advanced for its installation was that it would tend to develop enormous coal resources. Representative Isaac R. Sherwood, Civil War veteran, and the oldest man in Congress, who is the only surviving member of the Congress which authorized the construction of the railroad, reminded the House during a recent debate of the promises for coal development when the Alaskan Railroad was authorized.

Criticism was passed on naval officers for reporting against the availability of the Alaskan coal for naval use. The charge was made by Delegate Sutherland of Alaska that high naval officers had adversely reported on the use of Alaskan coal by the navy, although these officers had taken no part in tests of the Alaskan coal. He sought to show that the Alaska product is superior to that of the Pocahontas field of West Virginia, which is considered ideal steaming fuel, according to tests made by naval officers, but that in spite of this report, the use of Alaskan coal by the navy has been adversely reported on by reviewing officers.

Several members of Congress expressed surprise that at the time the government was opening up coal mines in Alaska to meet its fuel needs that substantial development was dropped without apparent cause or excuse. The charge was openly made by Delegate Sutherland that influences have been brought to bear on the government to prevent exploitation of Alaskan coal lands. Mr. Sutherland said the Matanuska coal field, in particular, should be open and the coal sold in competition with that of mines in the United States. Representative Barbour of California, noting the abundance of coal in Alaska, said that it should be developed and made available for use on the Pacific coast.

Representative Taylor, of West Virginia, representing one of the most important coal producing districts of the country, thought that in peace times the navy should use coal, saving oil for war purposes. Several members of Congress pointed out, however, that in view of the naval policy to burn oil that the need for coal was not so pronounced. According to late information, there are only four or five commercially productive coal mines in Alaska, whose product has heretofore been sold to the Alaskan Railroad and locally, but which is now being shipped to other Alaskan towns from the Matanuska and Healy River fields. Alaskan authorities say that to ship coal from the territory to the northwestern states and the Pacific Coast will require operation by large mining companies. It is estimated that an investment of at least one million dollars would be required to make such shipments. The only drawback to develop the coal lands by private interests is the restriction as to the size of the lease which might prevent large operators from entering the field.

Government officials in Alaska say that the mining industry affords a substantial basis for development there, and they advocate stimulation of mining in that territory. "The prosperity of Alaska depends on the development of its mineral resources," says Major Gotwals, of the Alaskan Road Commission. "Along Mount McKinley National Park range there are outcroppings of copper sulphide and other minerals which carry very excellent values of gold and silver. They are within sixty-five miles of the Alaskan Railroad, and it would not be difficult to bring them out. I explored in that region three years ago and opened up trails to enable prospectors to get into that district. The miners in that district should shortly be able to make some shipments. The policy of the Road Commission is to build roads wherever they promise to encourage the development of the mining industry along the railroad."

A scheme involving an expenditure of one million dollars to provide road transportation to the Kugruk River and Keewalik mining districts is being developed by the Road Commission to connect up the gold and coal districts with Nome, which would save in the cost of supplies and speed up gold production in that area. Present business along the railroad is entirely that of mining, and practically every mining district is reached by trails. Officials state that gold production in Alaska has not yet turned the corner, but with additional dredges now entering the district, better results are anticipated. The difficulty of operation in Alaska is shown by the fact that it takes two years to get a dredge into Alaska overland, set it up and secure supplies and labor.

George A. Stahl was re-elected as the Colorado state chairman of the Western Division of the American Mining Congress at a joint meeting of the Colorado mining organizations held in Denver, March 19.

THE BIGGEST MINING EVENT OF 1924

Sacramento Convention To Be A Real Reunion Of Mining Men—A Delightful Vacation Trip As Well As A Significant Industrial Meeting

TO visit Sacramento is to come back with a realization that the Twenty-Seventh Annual Convention of the American Mining Congress to be held in the capital city of California, September 29 to October 4, should be the most significant meeting of real mining men in the history of the organization as well as the most delightful of mining reunions.

SACRAMENTO A REAL MINING COMMUNITY

For the first time in a number of years the convention of the national organization of the mining industry is to be held in the center of a real mining community. True, Sacramento is interested in many things; it has great agricultural, stock-raising and fruit-growing industries, but the foundation of Sacramento's development and the great promise of its future lies in mining and in the industries which the utilization of mineral resources will bring. If the historical back-ground of a picturesque and vital period in the history of mining; if the presence of great mining operations within two hours' motor ride of the city mean anything—they mean that every mining man attending the convention will find himself in a community which is enthusiastic and vitally interested in the welfare of the mining industry. Holding the convention in such a community will give to the sessions an interest and an impressiveness which will add much to the value of the occasion.

Nothing is more typical of the warm welcome which will await the delegates attending the American Mining Congress convention or more typical of the hospitality of California than the fact that the beautiful and distinctive state capitol standing in a magnificent park has been turned over to the American Mining Congress for the convention. The general meetings of the convention will be held in the Senate and Assembly Chambers and the various conferences will be located in committee rooms throughout the building. This is the first time in the history of California that the state capitol has been turned over to a great national organization for its convention sessions and never before has the convention been staged in such an impressive and historic setting.

The Snow-capped Peaks of the Sierras

CALIFORNIA'S WONDERLAND

The outstanding feature of the Sacramento convention will be the opportunity afforded to every delegate to see the most beautiful part of California under the most favorable conditions and to visit some of the most famous and largest mining operations in the world.

Sacramento lies in the center of a broad, fertile river valley, but it is within an hour's ride of the foothills and six hours takes one to the summit of the Sierras. The great "Mother Lode" gold mining district which runs north and south over a hundred and fifty miles can be reached within two hours.

In order to make the fullest use of these advantages, the local committee in Sacramento has arranged a series of side trips during the convention week, which will enable the delegates to see the mountains of California and to visit the gold mining operations. These side trips will include visits to the beautiful foothill country in and about Grass Valley, to the famous Sequoia Grove, in Calaveras County, as well as the inspection of such splendid mining properties as those of the Plymouth, Argonaut, Kennedy, Empire, North Star, Golden Center and other equally well-known mining properties.

In a very true sense the holding of the convention of the American Mining Congress in a western city is a return home for the organization and the important features of the program at the Sacramento convention will be the discussions of the important and vital

problems confronting the metal mining producers. Four topics of special interest and importance to mining men will be thoroughly discussed—the problems of federal and state taxation as applied to mining, the problems of the gold producers, plans for the stimulation of silver production in this country, the greater use of hydro-electric power in mining enterprises and a protest against the continual encroachment of both federal and state governments in hindering the expansion and development of the mining industry.

Federal and State Taxation

There is no subject of more vital importance to the mining industry than the subject of federal and state taxation. This is particularly true in many of the western mining states. Mr. A. G. Mackenzie, secretary of the Utah chapter of the American Mining Congress, is chairman of the committee appointed to work out a program covering the discussions of the problems of western metal mining concerns, and Mr. McKinley W. Kriegh, chief of the Tax Division of the American Mining Congress, will work out with the general tax committee of the American Mining Congress plans for the discussion of the problems of federal taxation as applied to mining from a national standpoint. These discussions should be of the greatest value to all mining companies, and particular pains should be made to have the western metal mining companies well represented with proper officials at these tax conferences.

Problems of the Gold Producers

The problems confronting the gold producers in the United States are of very great importance and vital interest, not only to the mining industry but to general business. Sacramento is an ideal place for a very significant and notable discussion of the problems of the gold producers. California has been and still remains the greatest gold-producing state in the Union and the "Mother Lode" alone, it is claimed, has given to the United States since 1848 $1,750,000,000.00 worth of gold. Mr. H. W. Seaman, president of the American Mining Congress, a gold producer himself, will play an important part in these discussions and will have the active cooperation and assistance of W. J. Loring, general manager of the Plymouth Consolidated Mines and the Carson Hill Gold Mines Company in California, where he is known as one of the most successful and ablest of the executives in charge of California gold mine production. The sessions devoted to the problems of gold will be unusually interesting and of great value to all mining men interested in participating in the formulation of a constructive program for the gold mining industry.

Stimulation of Silver of Vital Necessity

Throughout all of the western mining states the necessity of working out some cooperative plan for stimulating the production of and increasing the distribution of silver products is recognized. Silver will therefore have a very important place on the program at Sacramento.

Utilization of Hydro-Electric Power In Mining Development

No state has developed a greater use of hydro-electric power in all types of industrial production than California and the question of a greater use of hydro-electric power in the mining industry throughout the western mining states is one of special interest and of significance. It will be possible in California to have a presentation of the very best and most expert thought in the United States in regard to this problem and to visit as one of the side-trips of the convention some of the great power generating stations in the Sierras. This general session devoted to hydro-electric power should be of particular interest to all of the attending delegates.

Protest Against Further Government Encroachment In Connection With the Mining Industry

The steady increase in governmental paternalism, both in Washington and in the state governments, the tendency to interfere with individual initiative and individual rights, has been one of the noticeable obstacles which has tended to prevent the further expansion and development of the mining industry.

At Sacramento there will be a very complete discussion of the whole question of governmental paternalism and its effect upon the mining industry. The position of mining men in the different states will be outlined. There will be a review of state laws which have hampered the expansion and development of the mining industry, as well as an analysis of the developments in Washington which have interfered with individual initiative. All phases of this important subject, including the question of a wise policy of conservation, the restrictions enforced relative to the financing of mining enterprises, and other aspects of the problem will be presented in a comprehensive and effective way.

The mining industry is fundamental to national prosperity. If the industry is to be maintained and if its further expansion is to be made possible, it is essential that there should be cooperative action among mining men in all parts of the United States. The Sacramento convention may well mark a milestone in the progress of the mining industry and also mark the formulation of a constructive policy which will seek to secure a federal department of mines for the purpose of stimulating mining, as well as the creation of a wise policy opposing further hindrances and obstacles to the expansion of the industry.

Sacramento Offers Opportunity for Delightful Outing

Sacramento lies in the very heart of California's wonderland. The convention offers a rare opportunity to combine a delightful vacation trip with a very significant industrial meeting. Delegates coming to the convention from eastern points will have the great advantage of a very low, round-trip excursion rate which will enable them to come direct to Sacramento and to have their choice of a number of alternative routes for the return trip. The actual railroad round-trip from Chicago to San Francisco, with provision for a ten-day stop-over at Sacramento and the opportunity of returning via Los Angeles without additional cost is only $86.00. If the delegates desire to return via one of the northern routes, such as the Chicago, Milwaukee & St. Paul; the Northern Pacific, the Great Northern or the Canadian Pacific, an additional payment of $18.00 will cover the expense.

Special Train Movement to Be a Feature. Arrangements have been made whereby a special train running as a section of the famous Overland Limited will leave Chicago on Monday evening, September 22, traveling over the Chicago & Northwestern to Omaha, and the Union Pacific to Denver. This train will consist of three compartment cars, sleepers, two combination compartment-drawing room sleepers, a dining car and a club observation car. Arrangements have been made to stop over for two days in Denver, September 24 and 25; the 24th will be spent in and around Denver where a delightful entertainment program is being arranged by a local committee. The 25th will be spent in and about Colorado Springs and the train will pass on to Salt Lake City over the Denver & Rio Grande through the famous scenic section of the Rocky Mountains including the Royal Gorge, Tennessee Pass and the Green River Canyon and passing through Leadville and other famous mining centers.

A day and a half stop-over will be made at Salt Lake City and opportunity will be given to visit the notable places there and see the great mining properties such as the Utah Copper Company

—plant at Bingham—and other properties equally well known which have made Utah a great mining state.

The special train will leave Salt Lake City on Sunday, September 28, traveling over the Southern Pacific Line through Nevada and crossing the Sierras at the most beautiful time of the year, giving the delegates the opportunity of seeing the famous scenery in the American River Canyon. The train will reach Sacramento, California, on Monday, September 29, where the delegates will receive a royal welcome from Sacramento citizens. All regular round-trip excursion tickets will be good on this train.

Entertainment Features

California's hospitality is famous. Sacramento will do everything in its power to make delegates feel at home. In fact the entire community is enthusiastic beyond measure over this convention and their reception and welcome of the American Mining Congress delegates will be a royal one.

Beautiful Historic Pageant on the Opening Night

On Monday, September 29, in the evening, the Sacramento Convention Committee will stage a beautiful reception out of doors in the splendid capital park. As a part of this reception there will be presented a series of historical episodes illustrative of the early days of California which will bring back in a colorful and impressive manner the atmosphere of the pioneer days.

In addition to this splendid opening reception, arrangements have been made to devote the entire day of Wednesday, October 1, to a series of automobile trips to the various historic and famous mining camps and districts adjoining Sacramento. Delegates will have the opportunity of choosing the trips they prefer and the arrangements for a return of the delegates to Sacramento in the evening will be carried out on a scheduled basis.

On Friday evening, October 3, will be a delightful banquet in the newly constructed Hotel Senator, one of the finest hotel properties in the United States. The banquet arrangements will all be in charge of the local committee and the banquet will be a real feature of the entire convention.

In order that every delegate may have the opportunity of seeing the real beauties of California, special arrangements have been worked out whereby the delegates who so desire can visit the mountain districts, the famous Redwood groves and other beautiful points of interest. On Saturday and Sunday they will have the opportunity of spending the entire week-end in some of the most delightful and beautiful country in the world. The delegates may choose those trips which are of greatest interest to them personally and there will be at least ten or fifteen different trips arranged for, giving a wide choice in the way of different places to visit.

Hotel Accommodations

Sacramento is a city of over 100,000 inhabitants, exceptionally well equipped even for Californian cities with hotel accommodations. The convention headquarters will be the Hotel Senator, a two-million dollar building which is just being finished and which will be in a sense christened by the American Mining Congress convention. This beautiful property faces directly on the capital park grounds and is a notable hotel structure.

Other first-class hotels include the Travelers' Hotel, which has had a fine reputation for a number of years, the Sacramento Hotel, the Land Hotel, and a number of smaller hotel properties.

Every delegate attending the convention can be assured of good accommodations and of a pleasant time in Sacramento during the week's period.

A Unique and Distinctive Experience

The Sacramento convention of the American Mining Congress will be a very distinctive occasion. Every mining man interested in the welfare of the industry should make every possible effort to be present at this notable and significant meeting. Every mining man should appreciate the fact that by going to Sacramento for the convention he has the opportunity of combining an important business engagement with a delightful vacation outing and that for this reason Sacramento will always stand out as one of the high-water marks in the history of American Mining Congress meetings.

MANGANESE IN 1923

THE Department of the Interior announces through the Geological Survey that statistics compiled by J. M. Hill show that the magnesite material marketed in the United States in 1923 from domestic mines was equivalent to 147,250 short tons of crude magnesite, valued at $1,103,700, an increase of 164 percent in quantity and 93 percent in value as compared with the quantity marketed in 1922. As the value is based on the price of crude magnesite f. o. b. mines and as about 50 percent of the output—a much larger percentage than usual—was made in the State of Washington, where the operators place a low value on the crude uncalcined rock, the increase in value in 1923 was low as compared with the increase in quantity.

Eight producers of magnesite in California in 1923 were operating at eleven localities in Napa, San Benito, Santa Clara, Stanislaus, Tulare, and Tuolumne counties. In Washington the output came from three properties near Valley and Chewelah, in Stevens County. Producers regained in 1923 some of the market they lost in 1922, largely because of the protection afforded by the new tariff act.

The Bureau of Mines is discouraging the use of black blasting powder in coal mining because it is a menace to lives of miners. It advocates the use of permissible explosives.

The Bureau issued reports on analysis of aluminum and alloys; leaching sulphide ores; reduction and carburization in iron smelting; and microscopic study of ores.

The Bureau says that half of the accidents and deaths in the coal mines could be eliminated by encouraging more adequate safety supervision by operating companies and greater care taken by the miners themselves.

A GLIMPSE OF THE COLORFUL DAYS OF '49 IN THE GOLD FIELDS OF CALIFORNIA

Many Trips To Old And Interesting Mining Camps Being Arranged By California Committee For Delegates To Annual Convention—Origin Of Mining Law—History Of Early Camps

By J. E. TAYLOR*

WHEN the wires flashed the welcome news that the American Mining Congress had selected the city of Sacramento, California, for its 1924 convention city a peculiarly deep feeling of satisfaction was stirred among the people of a wide section of the Golden State—a feeling which may be likened to a mother's feeling over the return of her prodigal son, for is not mining the genesis of the most treasured traditions of Sacramento and its tributary territory?

How inevitably the hand of time completes the cycle on the dial of human events! Every foot of the soil surrounding Sacramento is hallowed by the early-day deeds of the sons and daughters of the East, North and South and of foreign lands—the leaders in that first mad rush for gold during those colorful days of '49.

It is fitting and proper that the region that is responsible for the word "gold," in our loved title, the "Golden State," should have the honor of entertaining the hundreds of delegates to the American Mining Congress—the annual blue ribbon event of the mining world.

Within an easy two hours' drive from Sacramento, over a paved highway of wonderful scenic beauties, from which it requires only a little imagination to discern the actual footsteps of the Argonauts, is situated the heart of Nevada County—the cradle of quartz mining—the banner gold-producing section of California. How lavish was the hand of Old Mother Nature when she created the mineral wealth of the Nevada County district. Using Banner Mountain—which lies between Grass Valley and Nevada City—as the center, a circle having a 25-mile radius will encompass a mineral section which has produced $800,000,000 in gold, or more than one-half of the entire gold produced in California.

Moreover, this steady stream of the most potent of the metals continues. The mines go deeper and deeper on veins without reaching the limits of profitable production. Some of these mines have a depth up to 6300 feet on the dip of the veins, and the owners have no thought of ceasing their quest in that direction for gold.

Operating without particular publicity or sensationalism, the pounding of the stamps of the Grass Valley Mining District have for the last seventy-four years been music to the ears of the fortunate owners of the producing mines and it is probable that no living man will see the present production diminish. Unlike the "mills of the gods," which, we are told, "grind slowly, but grind exceeding fine," the mills of the Grass Valley district grind fast and grind exceedingly rich.

For years, twice each month, the people here have seen the loaded mine conveyances drive up to the Wells Fargo express office, minus comment or ostentation, and unload their precious cargoes—bars of pure gold. In fact, it is such a common event for the natives of Grass Valley to see the familiar Wells Fargo wagon drive through the streets with guards armed with sawed off shotguns loaded with buckshot, that bullion day creates no comment from the street idlers; nor does it mean more to them than wash day does to the housewife. But to tell the story of the mining industry of this remarkable region we must start at its beginning which harks back to the days of '49.

It is now nearly four-score years since the discovery of gold on the Sierran slopes. In response to that discovery, there started, as if by magic, a vast column of freighters around the horn to the Pacific Coast loaded with human cargoes, and the trails leading into California were thronged with immigrant trains, all bound for California's gold fields, the Aladdin land of wealth. Soon the slopes of the Sierra Nevadas swarmed with gold seekers, all trying to make their "pile" and then return to the states. The only place which meant home to a large majority of the miners was the cot they left behind in a land far away. And as this first mad rush in the quest of gold involves this county, it has been the contributor of many of the most brilliant and most thrilling pages of California's golden history.

"Town Talk," "You Bet," "Rough & Ready," "Red Dog," "God's Country"—these names give a hint of the colorful life of the near long ago. It is only necessary to glance at the nomenclature of Nevada County to associate their creation with the imperious miner of '49.

The exact date of settlement of Nevada County is indefinite and uncertain, but the first semblance of a settlement was in the early months of '49. Dr. Caldwell established a store on Deer Creek which was known as "Caldwell's Upper Store," or "Deer Creek Dry Diggings," afterwards to become Nevada City. About the same time another settlement was started four miles to the south which was known as Centerville—later named Grass Valley.

These settlements in and near Nevada City and Grass Valley, which were only a handful of men in '49, cast more than 2900 votes at an election in 1851. This mushroom growth shows what a fascinating allurement the thought, "making their pile in the California gold fields," exerted on the people of the East and the Middle West. And what a cauldron of humanity it was, men with every standard of living and with every philosophy of life gathered from all parts of the globe and were thrown together without law or restraint other than what they, themselves, created. Saloons, gambling halls, fandango halls, sprang up overnight; the men themselves were the dictators of their own actions, necessity the creator of laws, and pistols were the arbitrators of their rights.

Man was measured by the yardstick of companionship—that type of fellowship which came mighty near reverting to primitive man. The fetters of conventionalism were cast aside; the past was buried and the future forgotten in the exciting realities of their present. It was not a question of what one had, but it was a matter of what one was—there was no substitute for brawn. If you were rich you were lucky, if you were poor, it might be only for a day, for fortune could and did often change with one rocker of dirt, or, perchance, the turn of a card. Life could be spent, like the burning of a candle at both ends, by wooing "Mother Earth" in the diggings during the day and courting the fickle goddess of chance at the card tables at night. Many mistook the way to gambling halls as the short cut path to wealth, to their sorrow. Undoubtedly, that epoch of '49 created an unparalled page in the history of the world.

Provisions and necessities of life were costly—$14.00 for 50 pounds of flour, $1.00 for a pound of salt pork, 30 cents for a pound of potatoes, 50 cents a pound for tea, newspapers were 50 cents

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each, and other articles in proportion. The officials were in most cases self-appointed and service was the tenure of office. The storekeeper voluntarily acted as postmaster; an express rider carried the mail and charged 25 cents a piece for letters; but many of the homesick miners, looking for their families and far away homes, would pay for a letter, its weight in gold.

The average miner's cabin was a log affair with the crevices chinked with mud and with dirt floors. A few boards nailed together for a bunk, pine needles for a mattress, a plank for a table, a couple of three-legged stools, a big open fireplace, an iron kettle and coffee pot, a dutch oven, a frying pan and some tin cups and plates completed their equipment.

The principal culinary work of the average miner would consist of cooking up sufficient bread and beans on Sunday to last him the entire week. And as a matter of variety during the week he would fry a piece of greasy salt pork. This menu, beans, fried pork, bread and a pot of tea, was his chief diet. The thought of staying alone in the cabin naturally made the gambling houses and saloons very alluring, consequently both the saloon and gambling house flourished. Conspicuous objects in one of these places were rows of tables, on which were spread Mexican doubloons and dollars, with an occasional nugget and bag of dust to top off the pile. Around these tables were crowded men in gray or blue shirts, pants more or less begrimed with mud, boots drawn over the pant-legs, and slouched hats, staking their dust and intently awaiting the turn of a card that might double their fortune. An occasional woman of easy virtue was seen sandwiched in among the rough miners and trying, too, her luck at monte. The ring of the money on the tables, the announcements of the man at the roulette wheel, the cursing of the disappointed ones at their bad fortune, and the continual calls for "bar-keep," rendered the scene one rarely to be met with except in early California. Now and then a row would suddenly break out, pistols were drawn and bar tumblers flew with an abandon. And then, such getting out-of-doors, and such swift forgetfulness that the saloon would again be thronged and the games going within fifteen minutes as though nothing had occurred.

Nevada City—Sugar Loaf Hill, scene of first hydraulic operation
(Oval) The Mother Lode country

Some of the placer claims were of amazon richness. Benjamen P. Avery, who mined in Nevada County in '49, gives a description of the richness of the diggings in Nevada County in a letter. Avery wrote to the editor of "Bean's History of Nevada County":

"The mines yielded wonderfully. From an ounce to twelve ounces a day was common with cradles; while many a long-tom party took home to their cabins at night a quart tin full of gold, much of which was coarse as wheat grains. Many a lucky fellow left with a fortune that first spring."

Before the towns were organized politically, when a dispute arose, the adjudication of justice was handled by a miners' court which usually decided and administered its findings on the spot. A number of miners would congregate, sometimes a dozen or more, and they would delegate unto themselves the authority to administer justice. If the miners' court decided that the accused deserved to be hung, he was strung up on the nearest tree; if adjudged to be flogged, he was stripped and whipped, but no matter what the penalty be, it was administered surely and swiftly.

No precedent existed to guide the miners in making their laws to govern mining operations. New conditions were continually arising which created new problems of jurisprudence. Miners' meetings were often called and after a discussion of the problem a decision covering the disputed point was usually reached, and this decision became the law of that particular locality.

For those of a judicial frame of mind it is interesting to note the crude origin of the mining laws which were later to

form the basis for much of the legal enactments of the Western States relative to mining.

The first mining law enacted was the one governing the size of a placer claim which was first made fifteen feet square. That size at that time seemed to be sufficient and was sized to fit the slow rocker method of working a claim. When the long-tom was originated—on Rock Creek, near Nevada City, 1849—the claims were enlarged to care for that more efficient method of working, and when sluice mining was originated—on Brush Creek, near Nevada City, in 1850—the claims were again enlarged to fit that more efficient method of working.

The next improvement in placer mining was the hydraulic nozzle, which method again revolutionized placer mining. This method was first discovered in Nevada City by a man by the name of Mattison. His appliance was a crude affair very much resembling a common garden hose nozzle. But the principle was so effective that this crude affair was soon improved upon and later the efficient hydraulic nozzle was developed. This invention made profitable the working vast banks of gravel which could not be profitably worked in any other way. As the different methods of gold extraction were originated, water power was used more and more in their operations and likewise laws had to be enacted to care for these changed conditions.

The successful operation of sluice mining created a demand among the miners for ditches and water rights, consequently the priority of water rights had to be protected. So in 1850 the miners who constructed the first ditch, in order to protect the supply of water for their ditch, posted a notice at the head of their ditch on Brush Creek, near Nevada City, which announced the appropriation of water from that stream. This notice simply stated that the owner of certain claims below, claimed the amount of water from that stream which his ditch would hold. This water appropriation created some dissatisfaction among other of the miners, so a miners' meeting was held. Some of the miners who attended the meeting contended that water was free as the air, but as only about a dozen of the miners at the meeting were at that time affected by this new condition, they, by mutual agreement, decided to lengthen the original ditch, which allowed all of those affected to participate in the benefits of the ditch. This action was approved by the meeting which established the precedent of the original appropriator having the first right on that particular stream. Thus was the law of acquiring a water right by appropriation originated in California.

Sluice mining made the water in the creeks below so muddy that it interfered with the miners who were working lower down on the creeks with long-toms. Another miners' meeting was held and the complaint about muddy water was considered fair by the ditch owners, so it was agreed not to sluice when the water in the creek was low. Thus was the debris question raised for the first time, which afterwards became a serious question between the farmers in the valleys and the miners in the uplands.

When the first gold bearing quartz vein was discovered a new condition arose and a new law had to be adopted for quartz claims. At first it was attempted to govern quartz claims with the placer claim law, but that was found unsatisfactory, so a miners' meeting was held in Grass Valley, and the first laws governing the location of a quartz claim were devised, which read as follows:

"The lot shall be staked off with one stake at each corner, and the fifth one in or near the center with the number and name of owner, and said lot shall be recorded when taken up; and if sold, shall be transferred to the purchaser, and if any lot or lots are not worked by May 1, 1851, they shall be considered forfeited."

These crude requirements were found insufficient, so another miners' meeting was held in Grass Valley, April 13, 1851, and the following changes were made:

Voted—That all new claims may be one hundred square feet not to interfere with present claims.

Voted—That all old claims be recorded by the 10th of May, or be forfeited.

The laws enacted on April 13, 1851, allowing each claimant or claimants one hundred square feet to the claim, remained unchanged until the general district laws were passed in 1852, at which latter period claims were authorized to be one hundred feet on the ledge, with all the dips and angles. These last changes form the basis for the present quartz claim mining laws.

Whenever a few of our country men came together, organization and order was sure to follow. The people of the mining region gradually organized politically and put themselves within the control of the law by their own volition; they elected officers and provided for their support, and the whole system of civilized procedure gradually was adopted, and rapid strides were made in social progress.

About this time Nevada City elected a Justice of the Peace in the person of one Ezekiel Dougherty. "Uncle Zeke" left a heritage in the form of many remarkable decisions. A fellow was examined before Uncle Zeke, who was charged with horse stealing. Several witnesses were sworn who testified against the prisoner quite strongly. It looked like a plain case. The counsel for the prisoner rose and addressed the court, "May it please Your Honor," said he, "I now propose to introduce a few witnesses to establish the good character of my client." "What the h—l," said Uncle Zeke, "is the use of trying to prove his good character when it is already proven he is a d—d thief!"

On another occasion in a criminal case, the evidence was all in and the prosecution had spoken, and Uncle Zeke was fatigued. The defendant's attorney rose prepared for a long argument. "Your Honor," said he, in opening, "it is a presumption of law that a man is innocent until he is proven guilty." Uncle Zeke, uneasily twisting in his chair, interrupted: "Yes, but there is another presumption of law, that a Justice of Peace is not bottomed with cast iron. You can go on with your speech, but I am going after my bitters right now!"

Great strides were also made in discovering new diggings for gold. These discoveries were largely responsible for readjusting the first transitory opinions held by the early-day miners that all of the gold lay close to the creeks and would soon be scooped out and then the people would leave the country. Soon, however, the miners learned that the flats adjoining the creeks would pay and that in many places there were streaks along the bedrock underlying the top soil which were particularly rich. Gradually these rich gravel streaks were traced to higher ground and the discovery that the gravel "streaks" entered the hills high above the present creek levels. These gravel streaks were afterwards identified as old river channels. When the fact was established that these old river channels, or so called "streaks," ran through the hills regardless of the present water courses, shafts were sunk on the higher ground to intersect these old river channels and this method of mining was termed "coyoting." Coyoting became so extensive that a town was created not far from Nevada City which was called Coyoteville. Some of these coyote claims, which were twenty-four feet square, paid as high as $20,000 to the claim. Later "coyoting" became known as drift gravel mining.

The next discovery was the blue lead gravel channels of the ancient prehistoric river channels, which was discovered in 1851 near Blue Tent. The gravel from the Blue Lead was different from

the gravel around Coyoteville as it was cemented together and at that time deeply puzzled the miners. The miners had to use powder to loosen it and then it came out in chunks which had to be broken with sledge hammers before it could be washed. It was very rich and gold could be seen cemented to the gravel, but owing to the complicated nature of working the gravel the miners found it difficult to make pay. The Blue Lead was afterwards traced from Smartsville, Yuba County, to Dutch Flat, in Placer County, and from this channel more than $100,000,000 were extracted. In a portion of the Blue Lead channels which passes through the San Juan ridge section of Nevada County, there is more than $100,000,000 in gold awaiting extraction, according to the estimates made by government engineers.

Perhaps, the most important discovery in Nevada County was the uncovering of the first gold-bearing quartz ledge at Grass Valley. To California, this discovery ranks second in importance only to the original discovery of gold at Coloma. This discovery was the beginning of the great quartz mining industry of today, which has poured so many millions of dollars in gold into the coffers of the world. Bean's History of Nevada County rather indefinitely fixes the date of discovery in June, 1850. Due to the Midas like production of the Placer mines at that time, it seems scant attention was paid to this memorial event. As history relates, the real excitement over the discovery of gold bearing quartz veins did not occur until October of 1850. A man by the name of McKnight, who came from Newtown to Boston Ravine, and camped on the summit of Gold Hill, which overlooked Boston Ravine, while prospecting for placer diggings there, uncovered the Gold Hill ledge at an intersection which was called an elbow in those days. The ledge was about two feet in width and exceptionally rich in "jewelry ore." In many instances the quartz was held together with pure strings of gold.

"Rhode Island George Crandell" brought a huge chunk of the ore to Boston Ravine, it being nearly pure gold, and the town went wild with excitement over its richness. The news spread like wildfire and hundreds flocked to the new find to try their luck. Claims were staked all over Gold Hill and the late comers staked claims on the adjoining hills. Other ledges were soon uncovered and many of them were very rich. From a comparatively shallow depth four millions of dollars were extracted from the Gold Hill vein alone. These ledges proved so rich and produced such an amount of gold that it had a depressing effect upon the placer miners. They thought that the source of gold had been found and it was freely predicted that gold would become so plentiful that it would become as cheap as iron.

Thus were these Sierran slopes reclaimed from Nature's wilds and civilization was indelibly stamped upon it in just a few short years. Quickly the insidious environments of the Sierra foothills inoculated the blood of these men and their puritanical past became a memory, always to be kept green, but "the bond of their new home was a bit tighter." Bonds of affection for their "Pards" and their environments held them like bands of steel. Amounts which formerly seemed a fortune to them looked paltry in the big new outdoors. Incentive for bigger things was ever before them and "Old Mother Nature" paid with lavish hand in virgin gold. They cast aside their first intention to make their "pile" and return home when they learned there were bigger and better things in life, and the land of their adoption was vastly richer thereby.

These romantic days have passed and with them the pioneers. Time has healed most of the gashes and scars of that first mad fight for wealth and carpets of green cover their battlefields. But to us who love these golden hills, their deeds will live as an inspiring memory.

At the present time the eyes of the mining world turn towards this section. During the last year many Nevada operators have been quietly acquiring properties and at the present time there are many deals pending in addition to the half dozen or more new ones which have actually started operations.

The cautious investigations of this rich and permanent gold mining section was a revelation to the Nevada and other outside operators, most of whom had formed opinions based on hearsay. Instead of finding the major portion of the district in the control of the large companies they learned that this mineral district was about twelve miles long and from five to six miles wide, a large proportion of which has scarcely been touched. Within a radius of six miles of the center of Grass Valley approximately 600 veins outcrop and how many more lie slightly hidden beneath the silt of the centuries and the lava capping can only be surmised. Certain it is that every developed mine has records of veins appearing in the most unexpected places. Less than 3,000 acres are controlled by the large companies, and of this less than 1,500 acres has been worked by deep mining, the production of which is computed at $150,000,000. It is probable that no other district in the world has a greater per acre production of gold than the district under discussion.

Reduced Railroad Fares Granted For Cincinnati Coal Exposition

Reduced railroad fares have been granted by the Central Passenger Association for delegates attending the meetings of the American Mining Congress and the National Coal Association in Cincinnati, during the week May 12-17.

Round-trip tickets will be sold at one and one-half fare, with a minimum of $1.00 for the round trip, on identification certificates applicable to members of either organization. Tickets will be good via the same route in both directions.

These round-trip tickets will be sold from May 8 to May 14, inclusive. and the return portion thereof will be validated at Cincinnati, O., by agents at the regular ticket offices of the lines from May 12 to 14, inclusive. The return limit of the tickets is midnight, May 23.

The identification certificates, entitling the bearer to the purchase of round-trip tickets at one and one-half fare, must be presented and surrendered to the ticket agent at the original starting point. One identification certificate will suffice for each delegate, including dependent members of his or her family. It is not necessary to furnish separate certificates for dependent members of the family.

Identification certificates will be sent out from the offices of the National Coal Association and the American Mining Congress, Washington, D. C. Persons not having received identification certificates should write in to either office for them.

Main Street, Nevada City, California

ROCK DUSTING AND PREVENTION OF COAL MINE EXPLOSIONS

Important Subject To Be Discussed At National Exposition Of Mines And Mine Equipment—Stone Dust Theory Advocated By British Authority And Bureau Of Mines—Utah Adopts Method

ROCK dusting as applied to the mining industry in the prevention of explosions in coal mines will be one of the important subjects that will be discussed at the Exposition of Coal Mine Equipment and Machinery to be held at Cincinnati during the week of May 12. In view of the recent explosions in coal mines, the subject is one that has aroused intense interest of the industry. Friday afternoon, May 16, has been announced as the time this subject will come up for discussion. John E. Jones, safety engineer of the Old Ben Coal Corporation, has been selected chairman of this session of the convention. Other speakers announced for the discussion of this subject are: J. W. Paul, engineer, U. S. Bureau of Mines; John T. Ryan, general manager of the Mine Safety Appliances Company; Edward Steidle, supervisor of Cooperative Mining Department, Carnegie Institute of Technology; and George S. Rice, chief mining engineer of the U. S. Bureau of Mines.

The subject will be discussed from the following angles:

Necessity for Rock Dusting.

Occurrence, Characteristics and Behavior of Coal Dust.

Actual Experiences With and Tried Methods of Applying Rock Dust.

Methods of Procedure.

Rock Dust vs. Water.

Cooperation of the U. S. Bureau of Mines.

Utah is the first state to adopt this method of protection and is the only state which has as yet required these safety precautions, and it takes the lead as a result among all coal-mining states in regulations for mine safety.

All producing coal mines in Utah have approved the program of the State Industrial Commission which, effective July 1, will require the use of rock dust to prevent the widespreading of coal-dust explosions; the use of water on the cutter bars of mining machines to decrease the amount of dust formed, and the use only of closed lights and permissible explosives to be set off only by electric shot-firing methods, according to a telegram received by the Bureau of Mines, Department of the Interior. These requirements, it is said, follow an intensive study of safety precautions made by the industrial commission after the mine disaster at Castle Gate, Utah, on March 8, in which 174 men lost their lives.

George S. Rice, chief mining engineer for the U. S. Bureau of Mines, recently returned from an extended European trip, where he studied, first hand, the methods of rock dusting as practiced in England, where it is a compulsory measure of protection. Mr. Rice will tell the Cincinnati meeting of the things he observed in England in this connection.

The Bureau of Mines has issued a bulletin, No. 225, by Mr. Rice, which is quite comprehensive, covering rock dusting in British, French, German and Belgian mines. The bulletin goes thoroughly into methods of distributing stone dust, methods of sampling mine road dust, preparation of stone dust, character of material available for rock dusting in United States, etc.

Dr. R. V. Wheeler, of the British Department of Mines recently gave a course of two lectures at the Carnegie Institute of Technology in Pittsburgh. These were on the "stone dust theory" used in Great Britain. Dr. Wheeler insisted that while this method is the best yet discovered for the purpose, it must not be considered as representing finality. He also made the prediction that cooperative study to make coal mines safe for miners will soon be inaugurated between the United States and Great Britain and other European countries as the result of steps already taken toward that development. In part, Dr. Wheeler, in his lectures, said:

"Although explosions do not account for more than a small fraction of the fatal accidents that occur in coal mining practice," he said, "the majority of deaths being due to falls of roofs and sides of the mine roadways, they impress the mind with a greater sense of disaster. It is natural to regard an explosion, that sends to their death at one stroke maybe two or three hundred men, with greater alarm than a succession of small accidents the very frequency of which tends to cause them to be regarded as a necessary hazard of the coal miner's calling. It is natural, therefore, that much patient study has been devoted to the character of firedamp and coal-dust explosions, with a view to eliminate them from the miner's life; but it should be borne in mind that there is no less a need for patient study of the causes and prevention of these minor accidents."

"Firedamp explosions are comparatively easy to study and define. An accurate estimate can be made of the proportions of gas that have to be present in air to form explosive mixtures; and the degree of violence to be anticipated from the most explosive mixture can be gauged. With coal-dust explosions it is otherwise; so many factors influence the ignition of a cloud of coal-dust in air, and the continued propagation of flame in such a cloud, that despite years of study of the subject we are still in doubt regarding all but the basic phenomena attending coal-dust explosions.

"We know that, broadly, the laws that govern the propagation of flame in explosive gaseous mixtures are applicable to explosive mixtures of coal-dust and air; and we can therefore follow the same lines of thought respecting each; but as regards such important details as the effect of the degree of fineness of the dust, its chemical composition and physical character, and the effect of the size and condition of the roadway along which the explosion travels, we are still painfully groping after absolute knowledge. For this reason, that exact knowledge of the subject shall not be too long delayed, it is eminently desirable that there should be close cooperation between the investigators in different countries. The United States, with their well thought-out and well-equipped Experimental Mine at Bruceton, Pa., have set an example of the manner in which such problems should be tackled; while in England, the Safety in Mines Research Board, with their surface explosion galleries, can study the same problems with just those slight differences in experimental detail as are desirable to check the validity of the conclusions drawn.

"There is every reason to believe that, as the result of conferences now in progress, a definite scheme of active cooperation between these two organizations, The Bureau of Mines in the United States of America and the Safety in Mines Research Board in Great Britain, will be inaugurated."

His second lecture on, "The Prevention of Explosions in Coal Mines," was particularly interesting to his audience because of his discussion of the "Stone-dust remedy," a method that is practically unknown in this country. At least, it is little practiced.

"The soundest principle for the prevention of explosions in coal mines," he said, "is to exclude, as far as is practicable, all means of ignition from the pits,

or so to control the use of these potential means of ignition as to render them free from danger. Thus, the light by which a miner works is a means of igniting firedamp; lights cannot be excluded but they can be rendered safe, flame-lamps by protection with gauzes, and electric lamps by sound construction and design.

"Explosives used for the mining of coal can, if not properly compounded or if improperly used, ignite either firedamp or coal-dust. It would, no doubt, be practicable to exclude explosives from the coal mines, but in many instances the cost of mining the coal would be greatly increased; therefore none but tested explosives should be used and clear rules for their use should be impressed on the miner.

"Mechanical appliances are required for drawing the coal from where it has been to the surface; these, if electrical, can produce sparks or arcs that can ignite either firedamp or coal-dust. Such appliances cannot be excluded without rendering the cost of getting coal prohibitive; so their design must be carefully studied and none but flame-proof apparatus should be installed.

"Despite all pains taken to prevent means of ignition in mine workings, however, they cannot be entirely eliminated. A second principle for the prevention of explosions must therefore be adopted, as a second line of defense —namely, the firedamp and the coal-dust must be rendered as difficult to ignite as possible. Firedamp is comparatively easy to render unignitable, for the least quantity of firedamp that has to be present in air to form an explosive mixture is well-defined, and by using a sufficient quantity of air to ventilate the mine, the formation of an explosive mixture can be prevented. With coal-dust this is impracticable; the amount of air required would be too large and would necessitate such rapid currents that the dust would be raised as a cloud, which is just the condition in which it is most dangerous.

"Coal-dust, in fact, is *only* dangerous when raised as a cloud in the air, so that one way of rendering it harmless would be by treating it in such a manner that it cannot form a cloud; for example, by watering. This method, in fact, has been used in the past and to a limited extent is successful; but it is deceptive and in general gives a false sense of security for coal-dust is very difficult to make thoroughly wet, and unless the wetting is really thoroughly carried out, enough dry coal-dust to propagate flame may remain on the roadways.

"A better method of treating coal-dust is to render it difficult to ignite by mixing an incombustible dust with it. This, the so-called 'stone-dust remedy,' is the method most commonly followed in Great Britain."

Rock dusting has been strongly recommended by the Bureau of Mines, but except for a few mines watering or humidifying has been relied upon in the coal mines of this country. The numerous coal-dust explosions of the past few years, some of which have occurred in what were considered well-watered mines, have caused mining men to be suspicious of the efficiency of watering. Bureau of Mines officials state that watering as a general method is a failure and urgently recommend rock dusting.

STANDARDIZATION OF MINE HOISTS

By J. J. Moore*

DUE to the conditions existing at the various slope and shaft mines in the mining districts of this country, the standardization of hoisting equipment is, and probably always will be, a serious matter with the hoist manufacturer in so far as the mechanical construction of hoists is concerned, and standardization will probably never reach a satisfactory degree of perfection due to the multiplicity of conditions that have to be contended with in the various districts. However, there is much room for improvement along the lines of standardization of certain mechanical practice, particularly as it might apply to the drum, sheave and rope diameters.

Some operators who are thoroughly sold on the idea of "Safety First" will specify a given size of rope to perform a certain operation. Oftentimes we find this rope is rated by the rope manufacturer for a working load probably 100 percent greater than the working load that the operator will impose upon it. The rope specified is frequently much heavier than is actually required, and most of such specifications are made without any regard for the diameter of the drum on which it will be wound or the sheave over which it passes. Where installations of this kind are made, the result is that the large rope, being bent to the small diameter of the drum or sheave, soon crystallizes and breaks the outer strands of the rope, and in most cases its life is comparatively short. While cases where operators use too large a rope on too small a drum or sheave are comparatively few, yet there are a sufficient number of such cases to warrant the standardization division in calling the matter to the attention of all operators.

In the selection of wire rope, many operators choose to use the tables published by the rope manufacturers and add to the specified size as they see fit. To be sure, ample safety in a rope is very desirable, but where the diameter of the drum or sheave is not commensurate with the diameter of the rope, the installation carries no margin of safety, but might be termed as "unsafe" for the reason specified above.

Reviewing the rope manufacturer's tables wherein recommendations are made governing the diameter of drums and sheaves, we find that although speed is an all-important factor to take into consideration when computing the size of drum or sheave to use, the rope manufacturers make specific recommendations without any mention of speed. As the speed of the various hoisting units ranges anywhere from 100 to 5,000 feet per minute, we cannot see the advantage of following the rope manufacturer's tables governing drum and sheave diameters, wherein little or no mention is made of this all-important factor.

Comparing mine hoist service with other classes of hoisting duty, let us take for example the building industry wherein hoists are frequently called upon to hoist heavy loads of steel over the heads of people in downtown streets, and it will be noted that although the drum or sheave diameter is seldom more than twenty times the diameter of the rope and ropes are selected for their rated strength, the percentage of accidents due to broken ropes is comparatively lower than in the coal mine service. Although there is no direct comparison between the two classes of service, it goes to show that a rope rated for strength commensurate with its load and wound on a drum of sufficient diameter (speed considered) to prevent destruction of the rope is a safer proposition than the use of an over-size rope without any regard for its speed, drum diameter or sheave diameter. I believe the time is not far distant when manufacturers, operators and engineers should get together and decide upon a table that would be of some use to the industry in the selection of rope diameters, rope construction, drum diameters and sheave diameters.

The industry will generally concede that the present tables in common use by the industry are of comparatively little value, as the rope users, hoist manufacturers and even rope manufacturers themselves pay little or no attention to them, knowing that they are the result of an experiment made under a certain condition and speed which could not be applied generally to the coal mining industry.

* Thomas Elevator Co.

DEVELOPMENT OF COLORADO RIVER BASIN

Determination Government Policy Delaying Project—Swing-Johnson Bill Now Before House Committee—Secretary Of Interior Makes Recommendations

DEVELOPMENT of the Colorado River Basin to a degree that would be beneficial to industries of the Southwest, has been held up for more than two years pending the determination of a definite government policy covering all phases of the utilization of resources of the river.

The Swing-Johnson bill, now being considered by the House Committee on Irrigation and Reclamation, proposes the construction of a dam and reservoir by the government at or near Boulder Canyon, the so-called "All-American Canal" and certain extentions therefrom. These are to provide for flood protection of the Imperial Valley and lands along the lower Colorado River, for irrigation of lands in California, Arizona and Nevada, and for making water and head available for the development of hydro-electric power.

The latter part of March, Secretary of the Interior Work sent a report to the chairmen of the Senate and House Committees on Irrigation and Reclamation covering the Swing-Johnson bill.

Accompanying it were the findings and conclusions of a select board recently appointed and composed of engineers from the Reclamation Bureau, the War Department, the Geological Survey and the Federal Power Commission, with detailed technical observations on the Colorado River problems.

In a discussion of the proposed Boulder Dam, power plant with transmission lines, and the All-American Canal for supplying the Imperial Valley with irrigation water, the secretary asserted that this project was of such magnitude as to challenge the country's ablest engineers and should be the subject of most deliberate review by Congress. He called attention to the fact that the Boulder Dam as outlined will be the largest engineering structure of its kind ever attempted, containing 3,375,000 cubic yards of concrete or three times as much as the Assuan Dam in Egypt which is the greatest masonry dam ever built. He asserted that it proposed to raise the water surface 605 feet, a height greater than the Washington Monument and create a reservoir 120 miles long and storing one and one-half times as much water as that of the Gatun Lake on the Panama Canal.

The total cost of the three features of the dam, transmission lines and All-American Canal, were estimated at $200,000,000, which includes a margin of safety to protect the government.

Reverting further to the magnitude of the proposition the secretary said that whether or not it is practical at any cost to divert water through tunnels in the canyon walls of the river, whether a mass of masonry unapproached in size in the history of engineering is practical and whether it is possible to give more than an intelligent guess of its cost, are problems not to be passed upon by one man alone. The secretary urged that Congress in its final decision upon a plan of development for the Colorado River, consider all the separate and distinct features including flood control; impounding water for farming; storing water for generating electric power; the All-American Canal and the possible future necessity for domestic water to supply California cities. He recommended that such commensurate measures should be initiated by Congress from a point of view of 50 and 100 years hence rather than now.

The report of the Board of Engineers, composed by Spencer Cosby, Corps of Engineers, U. S. Army; E. B. Debler, Engineer, Bureau of Reclamation; W. Kelly, Chief Engineer, Federal Power Commission; Herman Stabler, Chief of Land Classification, Geological Survey; Walker R. Young, Engineer, Bureau of Reclamation, and W. E. Weymouth, Chief Engineer, Bureau of Reclamation as submitted to the Secretary of the Interior follows:

"The 'Conclusions' of the report of the Bureau of Reclamation, state briefly the conditions on the Lower Colorado which render necessary the provision of storage to regulate the flow of the river, as a protection of the adjacent lands against floods and to supply them with additional water for irrigation when needed. The advantages claimed for the Boulder Canyon site are set forth and it is shown that by the development and sale of power the entire cost of the reservoir can be defrayed.

"If a storage reservoir were to be built without regard to its power possibilities but for the sole purposes of flood protection and irrigation regulation, in other words to meet the most pressing needs of the Lower Colorado, the Mohave site would possess the advantages of being closer to the great body of lands affected than any other, and of allowing the development and operation of the upstream sites in the canyon section to be carried on for power only, except as their water supply may be affected by irrigation above. The Mohave site has not yet been tested and may be found infeasible.

"A reservoir at Mohave, built only to meet flood and irrigation needs, would develop so little power that its entire cost would have to be prorated among the lands benefited if the money spent is to be repaid. A reservoir at Mohave of 10,000,000 acre-feet capacity with a dam 160 feet high and operated so as to reserve 4,000,000 acre-feet for flood protection and irrigation, would produce about 150,000 horsepower which might carry all or part of the project.

"Mr. Stabler claims that there has been a period in the past forty years when the average discharge of the Colorado fell appreciably below that of the period on which the computations of the Bureau of Reclamation are based. The occurrence of such a period in the future would naturally make some changes in the conclusions based on those computations. It would reduce somewhat the extent of land below Boulder that could safely be irrigated, as well as the amount of power that could be developed in some years.

"The lowest dam for Boulder Canyon reservoir to be given serious consideration would probably be one that would raise the water to the level of the first good available dam site upstream. This apparently is near the mouth of Salt Creek and at the location for the Boulder development favored by the Bureau of Reclamation, and would involve a dam raising the water level about 375 feet. The 375 foot dam would give a reservoir capacity of nine million acre-feet and according to the Bureau of Reclamation estimate would cost about $27,000,000, about the same as one at the Mohave site with a reservoir capacity of ten million acre-feet, and so long as operated to reserve eight million acre-feet, for flood control and for the immediate needs of irrigation would develop so little power that it would give practically no return upon the investment. If only four million acre-feet are reserved for flood control and irrigation, as previously set forth in paragraph 6, the power output and possibility of repayment would be considerably greater than at Mohave.

"The Geological Survey party of 1923 which traversed the canyon section noted what appears to be a suitable site for a dam at Spencer Canyon with an elevation of about 1,120 feet which is 475 feet higher than the Boulder Canyon site; they also found another and perhaps better site at Bridge Canyon at an

elevation of 1,210 or 565 feet above the Boulder Canyon site.

"The power output and repayment possibilities of Boulder Canyon developments would on the basis of the Reclamation Service estimates, increase with the height of dam up to the 605-foot dam, and the unit costs of power would decrease.

"While it is desirable for many reasons that the national government should control the operation of a storage reservoir, one of whose chief functions is flood and irrigation control of the lower Colorado, the advisability of Federal cooperation in the building of the reservoir should depend largely upon whether the government can be assured of being repaid for its expenditures within a reasonable period. Whether the repayment is to come from the sale of power or from the lands benefited, or partly from each, assurance that it will be made should be received in definite and binding form before any expenditures are undertaken.

"The report of Colonel Kelly claims that the reduction of the maximum discharge of the Colorado to 80,000 second-feet, with proper regulation to avoid as far as practicable sudden changes below that limit, will greatly reduce the possible extent of flood damage to property behind the levees, as well as the cost of bank revetment and levee upkeep, and will eliminate danger of permanent inundation of the Imperial Valley. His report also claims that regulation to 75,000 second-feet can be secured by a reservoir of four million acre-feet, which he considers would provide a fairly satisfactory solution of the flood problem. That capacity makes no allowance for extraordinary floods, for silting, or for shutting off the discharge during a flood, which latter he deems impracticable. To make provision for silting he believes that some additional capacity beyond the four million acre-feet may be desirable.

"According to the estimates of the Bureau of Reclamation, a reservoir of ten million acre-feet capacity or a reserved capacity of eight million acre-feet in a larger reservoir would control all floods of record to a flow of 40,000 second-feet.

"The water resources of the Colorado River Basin should be developed along lines that will insure the extension of irrigated areas dependent thereon and the production of power to the practicable limit with adequate provisions for the control of floods. To this end no head should be needlessly sacrificed and losses by evaporation should be held to minimum. Any project now undertaken should fit in with such general scheme of development. Irrigation throughout the Colorado River Basin is considered a higher use of water than power and should be accorded preference.

"It is believed that the most advantageous combination of projects for the logical development of the Colorado River will include a dam, at or near the site chosen by the Bureau of Reclamation for the Boulder Reservoir, that will raise the water level to an elevation somewhere between 1,020 and 1,250 feet."

Hearings were instituted before the House Committee early in February, and indications are that the bill will be reported to the House shortly.

A mass of testimony, both for and against the development stipulated in the bill has been presented to the committee by public officials, government engineers, state representatives, representatives of power companies, and representatives of various associations interested in or familiar with the task of developing the river.

In a letter to the committee, the Federal Power Commission advised against Federal construction of any of the proposed projects, insofar as "the bill proposes that the United States undertake a new national activity, namely, the business of constructing facilities for production of electric power for general disposition, an activity, which if logically pursued, has possibilities of demands upon the Federal Treasury in amounts far beyond those now involved in reclamation and highway construction combined."

It was recommended that such developments be kept under the administration of the Federal Power Commission in as much as that policy was proving successful.

The commission declared that "if the United States is to embark upon a general policy of public development of electric energy at Federal expense, it should do so only after full consideration of what the step means."

Attention was called to two other phases connected with the development of the river, namely, the Colorado River Compact and the use of water in Mexico.

The Colorado River Compact, negotiated for the purpose of determining by mutual agreement rather than by litigation the allocation of the waters of the river between the several states in the basin, has been ratified by all the states except Arizona. Until it is ratified, or it is known that it cannot be ratified, the advisability of the establishment through construction of rights in the lower states of such magnitude as would be involved in the proposed storage at Boulder Canyon, is doubtful.

In voicing the objections of the state of Arizona to the compact drawn up by the Colorado River Commission, Governor George W. P. Hunt has declared that the proposed allotment of water to irrigate 280,000 acres of land in Arizona is unfair to that state. The governor states that this apportionment was made to fit in with the program of the Reclamation Service. He contends that there are millions of acres of land in Arizona which it is possible to irrigate from the Colorado River and that "if the compact is ratified and the plans of California and those interested in the development of lands in old Mexico are carried into effect through the building of a dam at Boulder Canyon, it will forever bar Arizona from developing and irrigating the vast areas which are susceptible of cultivation in the state of Arizona."

"I am confident," states Governor Hunt, "that without a compact, the states of Nevada, Arizona and Utah can solve any questions which confront them in a legal and harmonious manner."

It is reasonable to believe, however, that should the Swing-Johnson bill be enacted into law, and before the benefits of the river development become a reality, an agreement would be effected by the various states involved, regarding the apportionment of the water between those states.

INDUSTRIAL ITEMS

COAL-MINE FATALITIES IN FEBRUARY, 1924

THE fatal-accident rate for coal mines during February, 1924, showed a very gratifying reduction as compared with February, 1923, according to reports received from State mine inspectors by the Bureau of Mines of the Interior Department. For each million tons of coal produced, the death rate was 2.69 as compared with 6.07 for February last year. For bituminous mines alone, the rate for February, 1924, was 2.32, as compared with 6.00; for anthracite mines the rate was 5.05 as against 6.43.

The actual number of fatalities reported during February was 158, of which 118 occurred at bituminous mines and 40 at anthracite mines. In February last year the number of fatalities was 303, of which 253 were at bituminous mines and 50 at anthracite mines. The 303 fatal accidents in February, 1923, include the loss of 120 lives in an explosion at Dawson, N. Mex.; during February, 1924, no single disaster killed as many as five men.

The record for the first two months of 1924 shows a production of 112,071,000 tons of coal, 461 lives lost, and a fatality rate of 4.11 per million tons, the bituminous rate being 3.84 and the anthracite rate 5.79. For the corresponding months of 1923 the output of coal was 108,824,000 tons, the number of deaths was 509 and the fatality rate was 4.68, the bituminous rate being 4.49 and the anthracite 5.70. Thus the fatality rate for January and February of the present year is about 12 percent below that for the same months last year.

All of the main causes of fatal accidents show reduced fatality rates per million tons in 1924, as indicated by the following figures:

	Jan.-Feb. 1923	Jan.-Feb. 1924
Falls of roof and coal	1.819	1.633
Haulage	.680	.473
Gas and dust explosions	1.314	.723
Explosives	.128	.125
Electricity	.110	.072

NEW SIZE "D" PNEUMATIC DRILL

A NEW size light weight non-reversible pneumatic drill has been brought out by the Ingersoll-Rand Company, No. 11 Broadway, New York. This new drill is known as size D and is suitable for light drilling up to 9-16-inch diameter holes, and reaming up to 5-16-inch diameter.

This is a light weight drill which may be fitted with either breast plate, feed screw or grip handle and so made adaptable for a wide variety of work. The construction of this machine is very similar to that of the No. 6 and 600 drills which this company brought out some two years ago and which were powered for drilling up to ⅝-inch diameter. These drills proved so successful that this new size D drill of larger bore and stroke was developed.

The features of this type of machine are, briefly: Light weight aluminum case, with steel bushings cast in all the bearing holes and the throttle hole; cast iron cylinders which are renewable and inter-changeable, and special three-cylinder motor. The renewable cylinders are a valuable feature, as any cylinder after long service may easily be replaced and the motor made as good as new at slight cost.

RECOVERING POTASH AS A BY-PRODUCT IN THE BLAST FURNACE INDUSTRY

DURING the war active steps were taken at a number of cement manufacturing plants to recover the potash that escapes from the kilns, and the cement industry then became an important source of potash in this country. A survey was made by the United States Department of Agriculture and it was estimated that the total potash escaping from all the cement plants of this country amounted to about 87,000 tons annually. Since these estimates were made, installations have been placed in a number of plants for the recovery of this potash, and in every case the quantity that was found to escape from the kilns closely agreed with the estimates that had been made during the course of the survey.

When the survey of the cement industry was completed a corresponding study was undertaken of the potash that escapes from the blast furnaces of the country. The loss from the blast furnaces of the country has been estimated at about 84,000 tons annually. The results of this study have been published in Department Bulletin No. 1226, and the methods used in the study, and the possibility of recovering the potash from blast furnaces are discussed. A copy of the bulletin may be secured, as long as the supply lasts, from the United States Department of Agriculture, Washington, D. C.

W. C. McDowell has been elected a director and vice president in charge of sales of the Traylor Engineering and Manufacturing Company, Allentown, Pa.

PERMISSIBLE COAL CUTTING MACHINES

THE latest addition to the list of permissible coal cutting machines, approved by the Department of the Interior, through the Bureau of Mines, is the Jeffrey type 29-C direct current arc wall coal cutting outfit. Two approvals were issued by the Bureau of Mines, No. 112, covering the 250 volt design, and No. 112-A covering the 500-volt design.

The complete machine consists of a self-propelled truck having a turret mounted on its front end which carries the cutter bar and the motor driving the cutter chain. The motor which drives the cutter chain also supplies power for turning the turret.

A second motor having a controller and resistance serves to propel the truck and raise and lower the turret. The cable reel and the fuse and switch compartment are mounted on the rear of the truck. If desired, a headlight is furnished, but only on 250 volt outfits. This headlight is mounted on the turret. The wiring between compartments is run in flexible armored conduit, except the wiring to the turret which is run in armored hose.

The various compartments containing electrical parts were tested in explosive mixtures of Pittsburgh natural gas and air, and all successfully passed the rigid requirement as set forth in Schedule 2-B of the Bureau of Mines. The wiring likewise is judged to represent good safety practice. If the coal mine operators who purchase these equipments will take the same interest and care in maintaining them in first class condition that the manufacturer and the Bureau of Mines have exercised in bringing them to their present state of development, it is believed that better safety conditions will be attained wherever they are adopted.

STANDARDIZATION

THE American Engineering Standards Committee has just issued a small but interesting book entitled "Standardization—what it is doing for industry." This describes how standardization is being carried on, first, in the individual plant, second, in industry as a whole, third, nationally on an inter-industrial basis, fourth and last, internationally.

This book can be had by writing to the office of the A. E. S. C., 29 West 39th Street, New York City.

WORKMEN'S COMPENSATION AND METAL MINING

Origin Of Accident Compensation—Digest Of State Compensation Laws—Insurance Rates Should Be Equalized In Proportion To Hazards Involved

H. M. WOLFIN and Byron O. Pickard have undertaken an investigation for the United States Bureau of Mines to determine a method or methods whereby underground compensation insurance rates for metal mining companies can be equalized in proportion to the underground hazards involved. The Bureau of Mines just has issued a report of these investigations, outlining the origin of accident compensation, main features of the principal state laws concerning compensation and the type of insurance carried by various companies. In part this report says:

It has only been during the past century that the state and the law began to take notice of the possibilities of preventing injuries and loss of time by holding the employer liable for accidents to his employes. The first laws resulted from certain damage suits by industrial workers against their employers, and were based on recognition of the ancient obligation of the master to care for his servant during the employment period. These earlier laws held the employer responsible for accidents due to his negligence, and bound him to care for the injured until restored; but did not offer any relief to the employe when the accident resulted from some cause other than the employer's negligence.

With these Old World laws as a basis, the burden of industrial accidents was gradually shifted from the employe to the industry through the enactment of liability and compensation laws. In Bulletin 126 of the U. S. Bureau of Labor Statistics, it is stated that Germany in 1884 enacted the first compensation law. Austria followed in 1887, Norway in 1894, Great Britain in 1897, Italy and France in 1898 and Spain in 1900.

The first compensation act to be enacted in the United States was in 1902, when the Maryland legislature passed an act providing a cooperative accident insurance fund; this law, however, was declared unconstitutional after being in effect two years. In 1908 Massachusetts passed an ineffective law, and during the same year a federal act was passed which was the first real compensation law in the United States. It was not until 1911 that the larger industrial states began taking the subject seriously, and at the present time practically every prominent industrial state has recognized the virtues in compensation for accidents to industrial workers, by the passage and enforcement of effective statutes.

The progressiveness of American private corporations was demonstrated, however, by the fact that several years before the states considered compulsory compensation measures, many large employers made more or less effective provisions to lessen the workmen's losses through accidents. These measures often consisted only of hospital treatment, but some provided compensation for permanent disability or death. Some of the larger corporations grouped themselves together to provide certain protection to injured employes.

Through these laws metal-mining companies have been compelled to add a new item to their cost sheets, in the form of premiums for insurance to cover their liability for lost-time compensation of employes injured during the course of their employment. It has been found that this cost is a variable in the different states and with different mines, due not only to different laws and assumed and computed rates but to varied mining practices. The cost of insurance on the ton mined or pound of metal produced amounts to considerable, and many operators believe that a much fairer and more moderate rate of insurance could be established, and still leave a profit for the companies assuming the risk, if an intelligent study of mining practices and hazards were made. They feel that the mine having comparatively few accidents, through intelligent methods of accident prevention, should not be taxed to pay for the accidents occurring elsewhere.

"Self-insurance" has been tried by many companies, and as a general rule is found to be considerably less costly by companies sufficiently large to continue it over a term of years.

Main Features of Principal State Laws

The U. S. Bureau of Labor has been active in making a general study of compensation insurance, and in their Bulletins 272 and 332 have published much interesting material on compensation laws. In abstracting from these bulletins it has been found that Missouri has no compensation law; that the Oklahoma law does not apply to death benefits; but in the other fourteen important metal-mining states—namely, Arizona, California, Colorado, Idaho, Kansas, Michigan, Minnesota, Montana, Nevada, New Mexico, South Dakota, Tennessee, Utah and Wisconsin—the workmen's compensation laws, in general, provide compensation for underground workers for death, for permanent total disability, for permanent partial disability and for temporary partial disability, based on the workman's earning capacity or wages at the time of injury. The maximum amount paid to dependents for death of an employe varies from $3,000 in South Dakota to $7,500 in Minnesota, the average being about $5,000. In Nevada from 10 to 66 2/3 percent of the monthly wage (but not to exceed $120 per month) is paid to dependents in

MAIN FEATURES OF COMPENSATION LAWS IN METAL-MINING STATES

State	Waiting period	% wages tempo. disability	Maximum for death	Security of payments	Burden of payment
Arizona	(1) 2 weeks	50	$4,000	(5)	Employer
Alabama	(1) 2 weeks	60	5,000	(6)	Employer
California	1 week	65	5,000	(2)	Employer
Colorado	10 days	50	3,125	(2)	Employer
Idaho	(1) 1 week	55	4,800	(2)	(3) Employer
Kansas	1 week	60	3,800	(2)	Employer
Michigan	(1) 1 week	60	4,200	(2)	Employer
Minnesota	(1) 1 week	66 2/3	7,500	(2)	(3) Employer
Missouri		(7)			
Montana	(1) 2 weeks	50	5,000	(2)	(3) Employer
Nevada	(1) 1 week	60	(4)	(8)	(3) Employer
New Mexico	10 days	50	3,600	(2)	Employer
Oklahoma	(1) 7 days	50	(9)	(2)	(3) Employer
South Dakota	(1) 10 days	50	3,000	(2)	Employer
Tennessee	(1) 2 weeks	50	4,400	(2)	Employer
Utah	3 days	60	5,000	(2)	(3) Employer
Wisconsin	(1) 1 week	65	5,200	(2)	Employer

(1) Retroactive. (2) Insurance in recognized companies or proof of ability to protect all losses. (3) Employer may collect hospital or accident benefit fund from employes. (4) 10 to 66 2/3 percent of monthly wages (not to exceed $120 a month). (5) May or may not insure. (6) Insurance not required. (7) Has no compensation law. (8) State fund. (9) Act does not apply to fatal injuries.

case of death. In Oklahoma the dependents may sue the employer in the courts, with variable judgments resulting.

The percentage of wages reimbursed to injured employes for lost time varies from 50 percent in seven states to 66 2/3 percent in Minnesota, the average being about 60 percent. In all these states a definite waiting period is established before compensation is allowable for temporary partial injuries. The minimum is three days (Utah) and the maximum two weeks (Arizona, Alabama, Montana and Tennessee). The average is one week. All of the states listed, except California, Colorado, Kansas, New Mexico and Utah, require payment for the waiting period if the injury results in lost time over certain extended periods. In every state the law places the burden of payment on the employer, but in Arizona the employer may settle disputes with employes by written agreements or arbitration. In Idaho, Minnesota, Montana, Oklahoma and Utah arrangements may be made with employes to charge or collect hospital or additional accident benefit funds from the employe's wages.

In Arizona the employer may or may not insure. In Alabama insurance is not required. In the foregoing list Nevada is the only metal-mining state where it is mandatory to insure in the state fund. In the other states the law permits insurance in recognized insurance companies, or self-insurance, on proof of ability to protect all losses.

The accompanying table has been abstracted from U. S. Bureau of Labor bulletins heretofore mentioned.

Types of Insurance Carriers

The various employers' liability laws provide a large field for insurance companies and have resulted in the choice of several types of protection by the operators, the most important of which are:

1. Stock companies giving protection on the payment of a previously agreed upon premium, based on the payroll.

2. Mutuals, in which the operator shares in the profits of the insuring agency, thereby giving the operator insurance at cost.

3. Reciprocals, a plan whereby a group of operators agree to form a pool, out of which will be paid the losses of each.

4. State funds, whereby the state assumes the risk upon receipt of premiums from the operators insuring in it.

5. So-called self-insurance. Only the larger, well-financed mining companies have been able to carry their own risks, and many of them reinsure their catastrophe hazards.

The stock insurance company is a corporation financed through the sale of capital stock to individuals, organized for the purpose of the mining companies' compensation risks and for the purpose of making profits thereby.

A mutual association is a cooperative organization composed of policyholders whose compensation risks are insured, and who control the business, sharing profits or losses. The mutual associations are divided into "pure mutual" and "mixed mutual"; the "pure mutual" being an association which divides all of its profits or losses with its policyholders, while the "mixed mutual" is similar to a stock company except that all profits above a certain percentage are returned to the policyholders.

Under the reciprocal plan, the pool payments are usually made by the operators purely on the basis of a percentage of the payroll of each company, without regard to the safety conditions existing in the individual mine, although there may be and frequently are some minimum standards which the operation must meet before it will be admitted to insurance in the organization. At the end of each insurance period after all claims have been paid or evaluated, any money that remains is divided between the operators in the reciprocal organization, on the basis of amounts paid in. If the amount already contributed is insufficient to pay all the costs of compensation of all injured employes, an assessment must be levied to pay the deficit unless reinsurance has been secured against this contingency. A reciprocal insuring organization is really a peculiar contract form of organization in which the members insure each other. There is an individual liability in such cases, unless the reciprocal organization has taken out reinsurance. Usually the organization is managed by an attorney-in-fact.

The state fund is primarily a mutual managed and controlled by the state.

Companies assuming their own risks save the profits of the stock companies and the cost of maintaining an insurance organization, although many of the so-called "self-insurers" maintain a compensation insurance department. As stated previously, in practically every one of the metal-mining states listed, "self-insurers" are required to furnish proof of financial ability or other security.

FOURTH INTERNATIONAL FIRST AID AND MINE RESCUE CONTEST

SEVERAL thousand invitations to attend and participate in the Fourth International First-Aid and Mine-Rescue Contest, to be held at Huntington, West Virginia, September 11, 12 and 13, have been sent out by the Department of the Interior. The invitations are being mailed to the coal and metal mining companies of the country, quarry operators, metallurgical plants, local unions of the United Mine Workers of America, petroleum refiners, the larger oil-producing companies, pipe line operators, the mine inspectors of the various states, and to the mining officials of various foreign countries, including England, Canada, Mexico, France, and Belgium. Meta mining companies operating in Mexico, and the larger coal mining companies of England and Canada, are also being invited to attend the contest.

The International First-Aid and Mine-Rescue Contest will be held under the auspices of the Bureau of Mines, with the cooperation of the West Virginia Department of Mines, the Huntington Chamber of Commerce, the American National Red Cross, the National Safety Council, and various mine operators' associations and miners' organizations. It is anticipated that as many as 80 teams of trained miners will compete for the various prizes offered for proficiency in first-aid and mine-rescue methods.

The Department calls attention to the fact that more than 115,000 miners have already been trained in first-aid to the injured and mine-rescue methods by the Bureau of Mines. This event promises, it is stated, to be an important one for the promotion of safety and efficiency in mining. A large attendance of miners is expected at the contest, and it is anticipated that many prominent representatives of the industry who have taken a keen interest in the promotion of industrial safety will be present.

The first-aid and mine-rescue contests will be for the international championships. International contest cups, medals, and prizes will also be awarded. The judging of the events will be according to Bureau of Mines standards by judges thoroughly familiar with first-aid and mine-rescue work. Entries for competing teams will close on August 27.

A feature of the meet will be the awarding of the congressional medal which is given annually to the team of miners adjudged to be most thoroughly skilled in first-aid and mine-rescue methods. Another interesting feature will be the awarding of the medals offered annually by the Joseph A. Holmes Safety Association in commemoration of notable deeds of heroism performed by miners in succoring their comrades imperiled at mine fires and disasters. The selection of the individual miners to receive these medals was made by the directors of the Joseph A. Holmes Safety Association last month.

THE WORLD'S DEEPEST MINE

OLD mines are not very deep and deep mines are not very old, on the average, according to Dr. Thomas T. Read, acting assistant to the Director of the Bureau of Mines, Department of the Interior, in a recent statement on the deep mines of the world.

The oldest mines in the world of which there is any certain record are the copper and turquoise mines of the Sinai Peninsula, which were worked by the Egyptians as early as 3700 B. C., but these have never been sunk to what would now be considered even moderate depths.

Phoenicians probably began to work the tin mines of Spain and Cornwall as early as 1500 B. C. Although tin mining in Cornwall has been carried on continuously until modern times, the Dolcoath workings, the deepest, were not sunk further than 3,300 feet, as the cost of tin produced from such depth was too great to compete with that from surface workings in Malaysia.

The various other old mines in Europe are not very deep. The Sulitelma mine, in Norway, has an inclined shaft 3,700 feet deep, and is of particular interest because it is the only deep mine north of the Arctic Circle; it was opened in 1887. Generally speaking, the deepest mines of Europe are coal mines. Coal mine shafts in Great Britain are as much as 3,500 feet deep, while many of the coal mine shafts in Belgium and France are over 3,000 feet deep and several shafts are now being sunk which will go to a depth of 4,000 feet.

Mexico is a great mining country and probably most people suppose it has many deep mines, but this is not a fact, for few of them are at all deep, and a shaft of over 2,000 feet is exceptional. The Fenoles mine, in Durango, Mexico, is 2,900 feet deep.

Most of the mines of South America might more accurately be called high rather than deep. The Braden mine, in Chile, one of the big copper mines opened in recent times, is entered at the bottom and worked up. The copper mines at Cerro de Pasco, in Peru (started as a silver mine in 1630) are only about 1,000 feet deep, though they are at an elevation of 14,000 feet above sea level. There are some small mines in South America at even greater elevations than this but the only really deep mine in South America is the St. John del Rey mine in Brazil; which is the deepest mine in the world. Its workings extend to a depth of 6,726 feet vertically below the top of the main shaft. This depth is reached by a series of connected shafts, like a flight of stairs. This is a gold mine which was started in 1834, and the region in which it is situated is the oldest mining region in the New World, gold having been continuously mined there for well over two hundred years.

The gold mines of the Transvaal, South Africa, take second highest rank for depth. The Village Deep workings extend to a depth of 6,263 feet, and there are so many mines of which the workings are over 4,000 feet in depth that it would make too long a list to mention them. The City Deep has made plans to work to a depth of 7,000 feet.

The next deepest mine workings in the world are in the Kolar gold field of India, where the Champion Reef Gold Mines, (Ltd.), has a number of deep shafts, two of them being 6,091 and 6,094 feet deep, respectively. The mining operations in this region are mostly at a depth of 4,000 feet or more.

Australia has many mines and some of them are quite deep, the Victoria Consolidated at Bendigo, being over 4,600 feet deep, and the New Chum is over 4,100 feet deep. At Kalgoorlie, in Western Australia there are several mines from 2,000 to over 3,000 feet deep.

The deepest mine workings in the United States are those of the Calumet and Hecla Consolidated, on the Keeweenaw Peninsula, Michigan. The copper deposits are inclined and the deepest workings are 5,990 feet vertically below the surface. The deepest vertical shaft is the Tamarack No. 5, 5,309 feet deep; the Red Jacket vertical shaft is 4,900 feet deep. There are several inclined shafts in this district which are over 8,000 feet long, but vertically they are not so deep as those mentioned. The deepest workings of the Calumet and Hecla represent the nearest approach man has made to the center of the earth, since they are about 4,600 feet below sea level. The other deep mines of the world are at higher elevations and consequently do not go so far below sea level. The deepest gold mine in the United States is in California, where the Kennedy Mining and Milling Company has a vertical shaft 4,200 feet deep. The Argonaut Mining Company, nearby, has a shaft, inclined at 60 degrees, which is 4,850 feet long. None of the coal mines in the United States is notably deep; one mine in Illinois has a shaft 1,004 feet deep.

Holes have been bored much deeper into the earth than mine workings have penetrated, but no one has, of course, ever been to the bottom of such holes. The deepest hole in the earth is in West Virginia, where it was bored to a depth of 7,579 feet in search of natural gas.

SUMMER COURSE IN COAL MINING

THE dates for the four weeks summer course in coal mining to be given this year at Carnegie Institute of Technology in Pittsburgh are announced for June 16 to July 15. Attention is called in the announcement to the fact that the course will be given in cooperation with the Pittsburgh station of the U. S. Bureau of Mines, which is conveniently located adjacent to the campus of Carnegie Tech.

Of special interest also is the arrangement that has been made for a special examination for fire bosses, assistant mine foremen and mine foremen to be held at the U. S. Bureau of Mines by the Pennsylvania Department of Mines immediately following the course on July 16, 17 and 18. This special arrangement is made, says the announcement, to give students who complete the course immediate opportunity to capitalize their summer work. The examinations will also be open, however, to any other miner who feels qualified to take the tests.

The Carnegie Tech summer course is designed to prepare miners for the examinations of the State Department of Mines for positions as fire bosses, assistant mine foremen and mine foremen. A certificate will be awarded at the satisfactory completion of the course by the Carnegie Institute of Technology. A mine rescue and first aid certificate will be awarded by the U. S. Bureau of Mines.

Each day of the course will be divided into a morning session at Carnegie Tech and an afternoon session at the Bureau of Mines. The morning work will include mine laws and regulations, mine ventilation, mine gases, safety lamps, methods of working, mine explosives, timbering, and arithmetic. At the Bureau of Mines the course will cover mine rescue and first aid training, coal-dust explosion demonstration at the experimental mine, permissible explosives demonstrations at the experimental mine, and lectures on mine safety.

According to the announcement, the course is limited to 25 men. The tuition fee for the entire course is $12. Arrangements have been made so that students who do not wish to live at home and commute may secure rooms in the dormitories of the Institute.

Loomis, Suffern and Fernald, certified public accountants, announce the removal of their offices from 54 Wall Street to 50 Broad Street, New York City.

DISTILLATION OF ZINC ORES

THE results of experiments on the distillation of zinc from complex zinc-lead-silver ores, made by the Department of the Interior in cooperation with the Missouri School of Mines and Metallurgy, are given in a bulletin recently issued by the last-named institution. The tests were conducted at the Mississippi Valley Experiment Station of the Bureau of Mines, Rolla, Missouri, and included a series of experiments upon eight representative roasted ores and upon a synthetic mixture of chemically pure zinc and lead oxides. The ores ranged in composition from a high-grade zinc ore containing only small amounts of lead and silver to one which contained more lead than zinc.

In the distillation of zinc ores containing lead and silver, the aim is to volatilize a maximum proportion of the zinc with a minimum proportion of the lead and silver, insofar as this is compatible with economical metallurgical practice, state B. M. O'Harra, associate metallurgist, Bureau of Mines, and E. S. Wheeler, assistant research metallurgist, Missouri School of Mines and Metallurgy, authors of the bulletin. This is for two reasons: (1) that the zinc produced may contain as little lead and silver as possible; (2) when the ores contain sufficient lead and silver to make profitable their recovery from the residues remaining after distillation, that this recovery may be as complete as possible.

As a result of the experiments described in this bulletin, the authors conclude that it should be commercially feasible to distill briquets made from zinc ores containing considerable amounts of lead and silver, such as are commonly termed complex ores, with a high recovery of zinc and a reasonably small volatilization of lead and silver. In distilling the briquetted ores there should be no trouble from slag or molten lead, as the briquets remain firm and hold up all slag and molten metal. This distillation may be carried out either by an electrothermic dry distillation process or in ordinary retorts.

From ordinary complex ores containing 10 or more percent of lead and an average amount of silver, it should be possible to distill about 90 percent of the zinc with from 10 to 14 percent of the lead, and not more than 2 or 3 percent of the silver. From ores containing less lead than this the proportional volatilization of lead would be greater, and from ores containing large amounts of lead only about 5 percent of it would be volatilized. The residual briquets after distillation would be in excellent condition to be smelted in a lead blast furnace for recovery of the lead and silver. The liquid zinc produced would in most cases have to be refined by liquation; from this liquation would be recovered a further portion of lead in marketable form.

In order to volatilize as little lead and silver as possible while at the same time distilling the desired proportion of the zinc, the distillation should be carried on at as low a temperature as possible, increasing the temperature gradually towards the end, when the distillation of the zinc would otherwise stop, but maintaining the temperature throughout at as low a temperature as is consistent with distilling the desired proportion of the zinc in practicable time. This method of conducting the distillation would give a reasonably steady flow of zinc vapor, hence is consistent with the requirements for obtaining good condensation of the zinc; it is in fact the way the distillation of high-grade zinc ores is carried out in present retort practice.

BITUMINOUS COAL INDUSTRY

(*Continued from page* 200)

seen in its true light and its members as decent, law-abiding and upright citizens, not branded as robbers, slave drivers and liars.

The industry will never be shown in its true light to the public and to their representatives until it has become better organized; until there is a truly national body, or perhaps three such bodies, each representing the different elements of the industry and all working together for the common good.

It seems today a hopeless undertaking to bring together all of the many warring elements in the industry into any single organization. Before the war, it is true, the industry did not show the need of any such organization, but even then its workings and methods pointed the way toward the conditions that have come into being during and since the war.

The orgy of 1920 was the worst thing that ever happened to the industry; its evils and their still perceptible effects were made possible by the lack of unity in the industry and of any representative national body.

The work of all of our Coal Associations, national and local, has been left entirely too much to their officers. If the individual members could be induced to take a more active part in the work of the Associations, not only in the way of discussions and contributions, but also looking to an increase in membership, the value of these Associations would be greatly enhanced and their possibilities of effective action increased. The slogan of a well-known organization in another industry could well be applied to the coal organizations—"Put the members to work!"

COAL'S POLITICAL PROSPECTS

(*Continued from page* 206)

merce Commission. Putting a little acid in their comments, they will point to the fact that three members of this cabinet have fallen from power over the handling of oil. Such a scandal is not the best sort of an invitation to throw all business into the hands of "corrupt politicians."

That is all very plausible. It sounds good. It would be good—if the people decided such questions on logic and reason. However, it must be recalled that while the conservatives are appealing the reason, the Progressives will be appealing to the passions of those who do not reason. To get at the possibilities—if not the probabilities—we have to take into account the reaction of those whose passions will be aroused.

It must be remembered, in the first place, that labor has been, for more than twenty years, encouraged to carry its troubles to the Federal government for adjustment. It must be remembered that, invariably, labor has always been favored in settlements thus made. I but state their case in their own language.

"We have won more through the government than we could get for ourselves. This is true regardless of the fact that we have had to work through a party which somebody else controlled. Our influence heretofore has been *indirect*. We believe that we can win even more if we have our own party in power—if we can deal *directly* with our own chosen representatives."

This suggestion is sinister when it is taken into account that, in the last two years, the most powerful labor organizations have gone on record as in favor of direct political action. The feeling of real uneasiness grows when it is recalled that labor unions have made definite political alliances within two years. And, the danger of the whole movement is exposed when it is recalled that these labor organizations have gone, officially, on record as in favor of the nationalization of the railroads, of the public utilities and of the coal industry.

Others may, of course, put such construction as they please upon this series of events. So far as I can see, they point clearly to the introduction of coal into the campaign as one of the biggest of our domestic issues. The only difficulty is that I cannot see enough partisanship for coal to make it a real "issue." It begins to look more like a dispute as to which of three methods of doing the same thing will be most likely to yield the desired result—the effective regulation of coal.

CURRENT OIL SHALE NOTES

ICHTHYOL, under the trade name of Saurolo, is manufactured at Norido, Switzerland, from the oil shales of that locality. It has a wide use by the medical profession as a skin specific. Saurolo has been submitted to the American Medical Association and received favorable judgment. Imported Saurolo is sold commercially under the trade mark of the importer.

Report comes from Oregon of a new deposit of oil shale on the two-mile district south of Bandon. The deposit is 16 feet thick, burns rapidly, and shows superficially to be oil shale. Development and tests of the shale will determine its commercial value.

Prof. T. Kimura, oil shale expert of the South Manchuria Railway Company, has shipped samples of oil shale to Scotland for test. The samples are taken from the Fushan colliery where beds of oil shale and coal alternate. Production of oil shale alone, or of coal alone, is not feasible commercially, but it is expected that the production of both may be successful. Professor Kimura is now on his way to supervise the testing in Scotland. He plans to visit the Colorado School of Mines and investigate oil shale developments in this country before going to Scotland.

J. H. Ginet, president of the Monarch Shale Oil Company, has begun the final work on the completion of his plant at De Beque, Colo. He expects to be in full operation within 30 days. The products will be gasoline, flotation oil and fuel oil.

The name of Battlement Mesa has been officially changed to Grand Mesa. This change is interesting because this mesa forms a part of the oil shale district of Colorado and is underlaid with heavy strata of oil shale.

The production of oil from wells in Burma is not sufficient to supply the local demand. For this reason the oil shale deposits of Burma-Siam occupy a valuable strategic position. There is no quoted price for crude oil, as the large producers are also refiners. However, small producers of oil get the equivalent of $3 a barrel for crude well oil. The shale oil of the Burma-Siam field requires more treatment than the well oil, but the higher content of the more valuable fractions amply compensate for the difference in cost of treatment. The lubricating oils from crude shale oil are superior to those from well oil. The retort designed by R. H. Crozier is so well adapted to the treatment of the local oil shale that it gives better results than the Scottish type of retort.

Official information from Sweden indicates that the experimental work of Experts Bergh and Larson is successful and that oil can be produced from oil shale at Kinnekulle at a cost below the cost of the imported oil. The same struggle—to produce oil locally from oil shale for less than the price of imported oil—is also going on in Tasmania, Australia, Germany, France, Japan, Burma and Brazil.

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BUREAU OF MINES REPORTS ISSUED DURING MARCH, 1924

Coal-Mine Fatalities in February, 1924—By W. W. Adams.

Approval System of the Bureau of Mines as applied to Permissible Storage-Battery Locomotives—By L. C. Ilsley and H. B. Brunot.

The Distribution of Sulphur in Crude Petroleum—By N. A. C. Smith and D. D. Stark.

The Hazards of Non-Permissible Explosives—By S. P. Howell and M. W. von Bernewitz.

Some Effects on Man of High Temperatures—By W. J. McConnell and R. R. Sayers.

Mining Limestone for Lime Manufacture—By Oliver Bowles.

The Float-and-Sink Test for Fine Coal—By B. M. Bird and H. E. Messmore.

New Uses of Nonmetallic Minerals—By W. M. Myers.

Fractional "Education" of Oil from Oil Shale—By Martin J. Gavin and Lewis C. Karrick.

Explosives Used in January, 1924—By W. W. Adams.

Development of Workmen's Compensation Insurance for Metal Mines—By Bryon O. Pickard.

Taking effect April 1, 1924, the business trade name and good will of the Gurney Ball Bearing Company was taken over by the Marlin-Rockwell Corporation, which corporation will continue the business under the name Marlin-Rockwell Corporation, successors to Gurney Ball Bearing Company.

The general offices of the corporation are located at 402 Chandler Street, Jamestown, N. Y.

Senator Underwood, Dem., Ala., in a Senate speech said the industrial situation is declining and cited pig iron prices which he said are a fair test. He said that within a year the price of pig iron had declined nearly a third, or $9 a ton. Pig iron is now lower in price than it was before the war.

SAFETY SUPERVISION

HALF the accidents and deaths occurring in the coal mines of the country annually could probably be eliminated by more adequate safety supervision by operating companies and the exercise of greater care by mine employees, states W. W. Adams, statistician, Department of the Interior, in a report just made to the Director of the Bureau of Mines. The employment of more supervisory employees, whose services are needed particularly to prevent accidents due to haulage equipment and to falls of roof and coal, might possibly cause an initial rise in the price of coal to the consumer, Mr. Adams points out. The prevention of unnecessary accidents would, however, soon more than compensate for the increased payroll expense of supervision, so that the selling price of coal at the tipple could be restored to its previous level, if indeed it proved necessary to increase it in the beginning.

It is generally known that in the coal mines of the United States more men are killed by accidents in proportion to the number of men working than in any of the leading European countries. It is not as widely known that fewer men are killed in the United States in proportion to the quantity of coal mined than in and other country.

Statistics collected by the Bureau of Mines show that in the United States 1,000,000 tons of coal cost 3.86 lives and 287,258 man-shifts of work; in Great Britain the cost of an equal quantity of coal is 4.52 lives and 1,058,840 shifts; in France, 6.90 lives and 1,856,265 shifts; in Belgium, 8.01 lives and 1,998,399 shifts; in Prussia, 11.85 lives and 1,213,-654 shifts. These figures relate to the five years 1916-20, or to the nearest comparable period for which figures are available.

Mining conditions are more favorable to a high average output per man in the United States than in the European countries. The coal beds in this country lie at comparatively shallow depths, the seams are much thicker on the average than those in Europe, particularly in Belgium and France; the coal deposits are generally flat or nearly so, while in Europe they have been subjected to disturbances that have resulted in their being frequently broken, faulted, and folded. Moreover, the thin seams in European countries are worked on the longwall system and as the coal is almost completely extracted, it is necessary to use waste or rock filling to prevent subsidence of the surface, this "dead" work lowering the average tonnage per employee for each mine as a whole. In the United States, where the mines are worked by the "room-and-pillar" method, and where perhaps one-third of the coal remains underground, a larger proportion of men are employed at the face in actual mining operations, thus making possible a higher average tonnage per man for each mine. Contributing also to a higher tonnage per man is the use of larger cars, made possible by the thick and level coal beds, and also the more extensive use of machinery in mining operations in this country.

Coal has always been produced and probably always will be produced to the accompaniment of accidents that result in death and injury to the men who work in the mines, the Bureau of Mines considers. To keep the number of accidents to the lowest possible point is the task that constantly confronts the mining companies and State and Federal mining officials.

The combination of American productivity with an adequacy of supervision equal to that generally prevailing in the mines of Europe is a consummation devoutly to be wished in the coal mining industry of the United States. It is hardly to be questioned that a strict observance of safety rules by mine employees, and more adequate supervision by operating companies of underground working conditions, particularly as regards safety at the face and in connection with haulage roads and equipment, coupled with the hearty cooperation of companies and miners with State and Federal mining officials, would result in the elimination of half of the yearly fatality list in this country with no reduction in the average productivity of the employees.

The full statistical details of Mr. Adams' comparative study of coal mine fatalities in the United States and Europe are incorporated in Serial 2592, copies of which may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C.

POTASH SURVEY

SEN. Sheppard, Dem., Texas, introduced S. 3047, appropriating $550,000 for the year ending June 30, 1925, and a like amount for each succeeding year for 4 years, for investigations by the Geological Survey and the Department of Agriculture Bureau of Soils to determine the location and extent of potash deposits in the United States and new and improved methods of recovering potash from other substances. Before undertaking drilling operations the Interior Department shall contract with owners or lessees of mineral rights involved, to the effect that should commercial amounts of potash or other valuable minerals be discovered, the government shall be reimbursed for not more than the cost of exploration. The contract shall not restrict the department in choosing drilling locations within the property or in conducting exploratory operations so long as they do not interfere with the use of the surface of the land and the government shall not be liable for damages on account of its reasonable use. Before drilling, owners of land within 10 miles of the proposed well, shall, in consideration of the increased value to their land incident to discovery of potash, and to prevent profiteering, be required to make an agreement naming the Interior Department as referee in determining the maximum price at which potash rights of such land may be sold. Purchasers of such rights shall be required to agree that potash obtained by them shall be marketed at a price not exceeding a maximum fixed by the department. The government will collect 10 percent per annum from net profits of sales until it is repaid for expenses in connection with exploration of deposits. The bill states that this country is dependent on Germany for 90 percent of potash and that the United States should develop its own potash supplies, and nitrates. The Geological Survey is quoted to the effect that underground potash deposits exist in the southwestern section of the country in quantity comparable in nature and amount with German deposits. Potash traces have been found from drill cuttings at several points, and it is possible to make exploration drilling over from 200 to 300 square miles to ascertain horizons at which potash occurs, its thickness, richness, and extent of deposits. The Bureau of Soils is quoted as saying that extensive sources of potash exist among waste materials of cement mills, blast furnaces, and natural raw materials, including the greensands of New Jersey, the leucites of Wyoming, the alunites of Utah, and the natural brines of Nebraska, Utah and California. Their recovery is possible through practical processes and the technology of manufacture, to yield potash of purity and quantity at a price to supplant the foreign commodity on the American market. The Survey estimates that drilling for potash in the natural state would require $2,500,000. The Bureau of Soils estimates that $250,000 would be required to conduct chemical and engineering researches and processes of recovering potash from other substances.

Shoes of aluminum, with wooden soles, are now made in Germany and used by workmen in chemical factories.

Tinker to Evers to Chance

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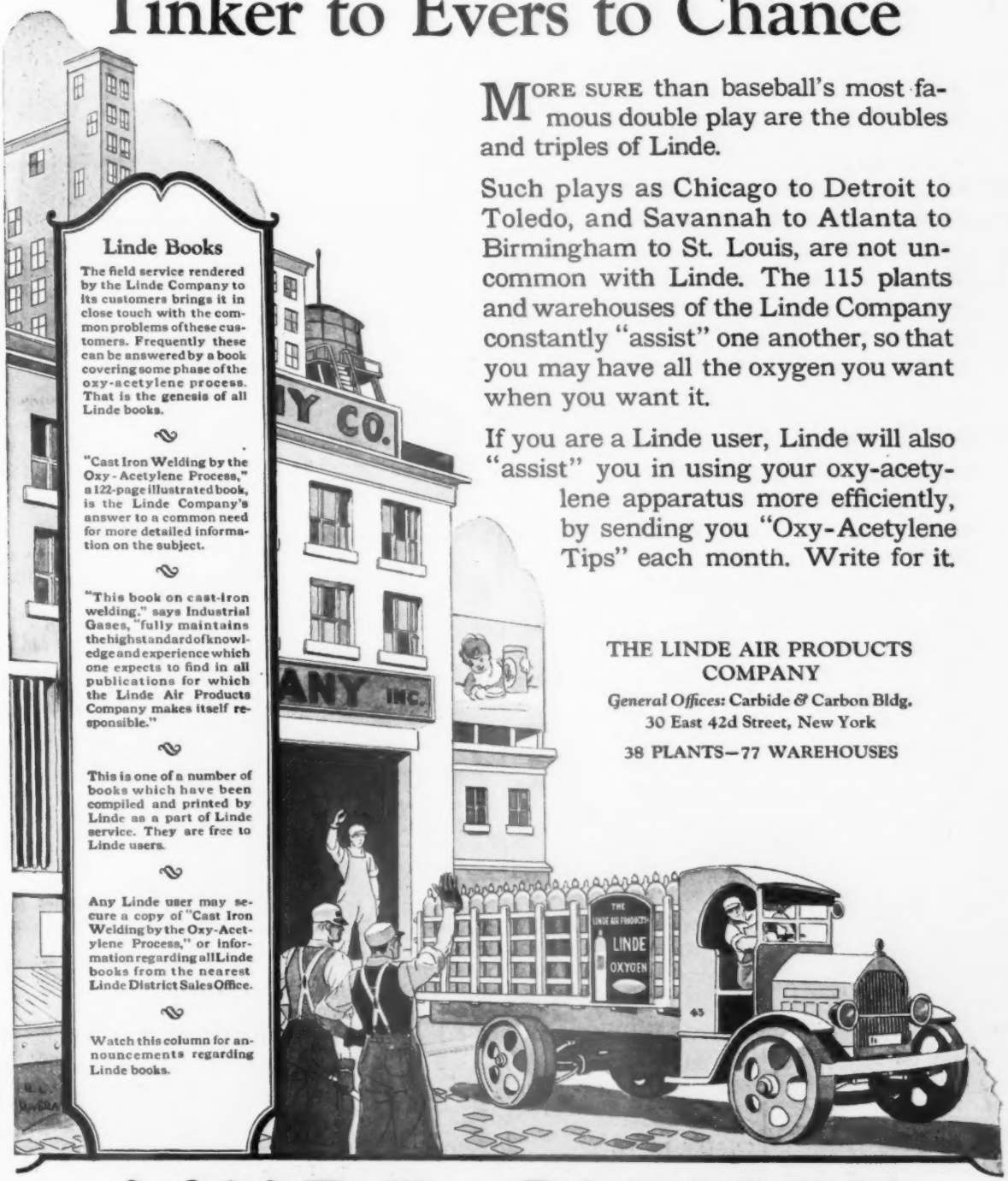
This is one of a number of books which have been compiled and printed by Linde as a part of Linde service. They are free to Linde users.

Any Linde user may secure a copy of "Cast Iron Welding by the Oxy-Acetylene Process," or information regarding all Linde books from the nearest Linde District Sales Office.

Watch this column for announcements regarding Linde books.



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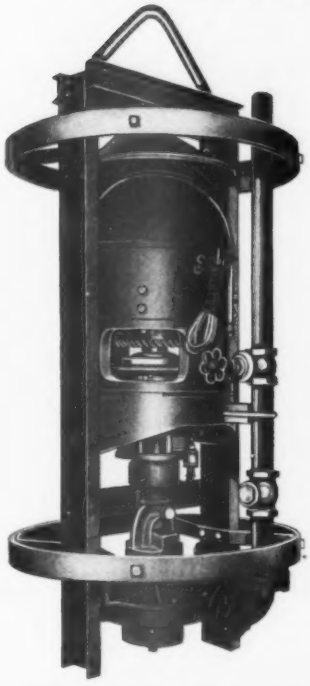

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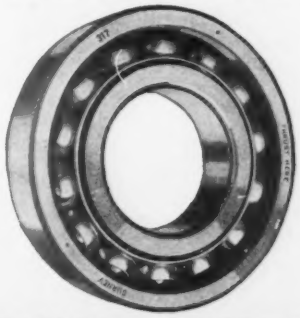

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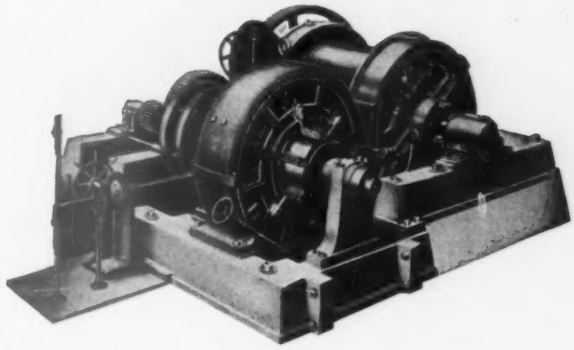

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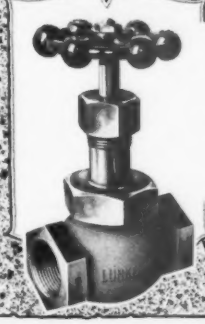

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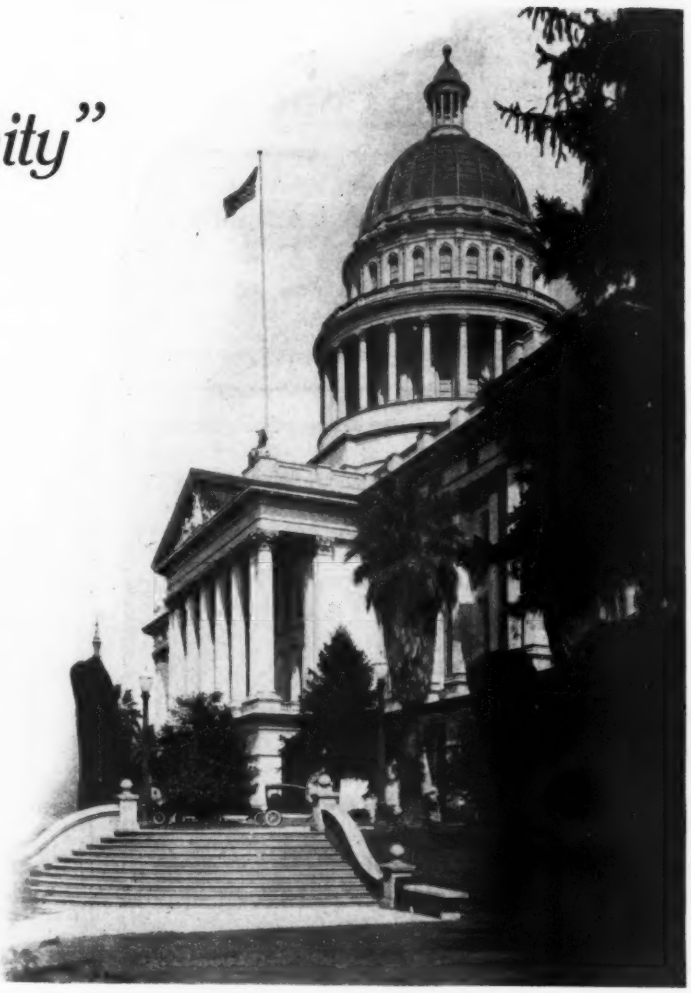

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W. G. McBride, Genl. Mgr., Old Dominion Co., Globe, Ariz.
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Milling & Smelting Practices and Equipment
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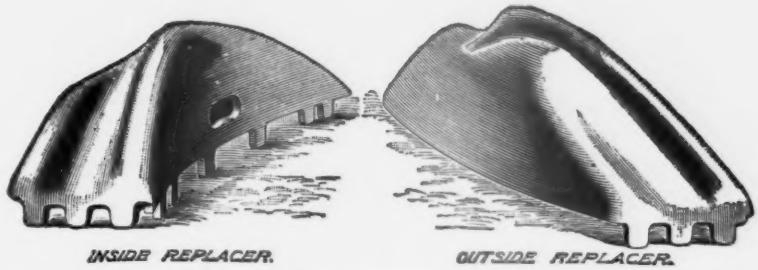
THE ALEXANDER CAR REPLACER MFG. CO.

SCRANTON, PA.

Car Replacers, Wrecking Frogs

Advantages:

All mining men are well aware that derailment in the mine is one of the most frequent causes of delay. A locomotive or a car off the track ties up the whole transportation system, as well as the Tipple or Breaker.



INSIDE REPLACER. OUTSIDE REPLACER.

Figure up for yourself the loss of tonnage and the cost resulting in such a tie-up.

It is quite obvious that the quicker you get the derailed locomotive or car back on the track the less will be your loss of time and money. With the Alexander Car Replacer these delays can be minimized. Derailments can be gotten back on the track in a very short time.

Each locomotive you have should be equipped with a pair of our car replacers, or in the case of a rope haulage system, a pair should be placed easy of access along plane or runway.

Sizes We Manufacture:

No. 1 REPLACER—Weight, 164 lbs. per pair; used on rail 5 to 6 inches high.

No. 2 REPLACER—Weight, 158 lbs. per pair; used on rail 4 to 5½ inches high.

No. 3 REPLACER—Made of ⅜-inch steel plate for Electric Motors, Mine Engines, Electric Cars and light equipment.

No. 1 EXTRA HEAVY — Made of ¾-inch plate, weight, 212 lbs. per pair; same rail as standard No. 1.

Our Number Three Replacer is the size we sell to the mines for use inside the mine, while the other sizes are sold for use in the yard and sidings and for standard R. R. service.

Material:

Our No. 3 Replacers are made from 6-16 inch pressed steel. They have strength without weight. Quality, not quantity. This is the reason we make the Alexander Replacer of Steel Plate instead of cast metal.

There are now over 95,000 pairs of Alexander Replacers in use. Practically every railroad in the United States and Canada is equipped with them.

Below we give a partial list of mining companies who have equipped their mines with the Alexander Replacer.

Some of the Coal, Lumber and Steel Companies Using Alexander Pressed Steel Plate Replacers

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Aluminum Co. of America	9
American Bauxite Co.	35
American Car & Fdry. Co.	212
American Loco. Co.	635
Amer. Smelter and R. Co.	8
American Trading Co.	24
American Metal Co.	25
Amer. Sheet & Tin P. Co.	10
Anaconda Copper Co.	3
Archbold Coal Co.	8
Arizona Copper Co.	8
Babcock Lumber Co.	51
Baldwin Supply Co. of W. Va.	7
Baldwin Loco. Works	902
Banner Fork Coal Co., Ky.	9
Bessemer Limestone Co.	19
Bethlehem Steel Co.	36
Bethlehem Chile Iron Co.	4
Bethlehem Coal Co., W. Va.	10
Bethlehem Loading Co.	4
Bittenbender & Co., Scranton, Pa.	26
Body Ky. & Lumber Co.	2
Boston Cons. Mining Co.	12
Brier Hill Coal Co.	5
Brothers Valley Coal Co.	7
Buck Run Coal Co.	7
Buffalo Union Furn. Co.	10
Buffalo Suseue. Coal Co.	5
Buffalo Block Coal Co.	3
Calumet & Hecla Mining Co.	5
Cambria Steel Co.	345
Cannon Reliance Coal Co., Colo.	2
Cape Fear Lumber Co.	4
Carnegie Steel Co.	109
Central Penna. Lum. Co.	10
Century Coal Co., Va.	4
Cherry River Boom & L. Co.	31
Climax Mfg. Co., Corry, Pa.	414
Clinchfield Coal Co.	27
Clyde Equip. Co., Seattle, Wash.	45
Colonial Collieries Co.	10
Columbia Coal Co., Ohio	4
Connell Anth. Mining Co.	3
Consol. Coal Co., Va.	33
Consumers Fuel Co., W. Va.	3
Cranberry Coal Co., Pa.	7
Crane Iron Works, Pa.	4
Crescent Coal Co., Pa.	3
Crozer Coal Co., W. Va.	4
Crystal Block Coal Co.	5
Davis Colliery Co.	7
Davis Coal & Coke Co.	3
Davis Supply Co.	45
D & H Coal Co. (See Hudson Coal Co.	663
D., L. & W. Coal Co. (See Glen Alden Coal Co.)	951
Diamond Match Co.	7
Dodson Coal Co., Pa.	23
Dolph Coal Co., Pa.	8
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DuPont Engineering Co.	32
Dutton Phosphate Co.	6
East Bear Ridge Coal Co.	3
Edison Portland Cement Co.	3
Edgarton Coal Co.	4
Elkhorn Mining Co., Ky.	6
Ellsworth Coal Co., Pa.	26
Emporium Lumber Co.	6
Enterprise Coal Co., Pa.	2
Export Coal Co., Pa.	4
Fairmont & Cleveland Coal Co.	6
Fairmont Mining Co.	73
Ford Collieries Co.	10
Franklin Coal & Coke Co.	3
Frick Coal & Coke Co.	81
General Electric Co.	15
Glen Alden Coal Co. (See D. L. & W. Coal Co.)	1087
Giant Portland Cement Co.	7
Grand Mammouth Coal Co.	4
Guantanamo Sugar Co.	6
Handlan-Buck Mfg. Co., St. Louis, Mo.	1651
Harleigh Brookwood Coal Co.	12
Harwood Coal Co.	8
Hastings Coal Co.	2
Hercules Mining Co.	2
Hercules Powder Co.	10
Hillside Coal & Iron Co.	40
Hitchman Coal & Coke Co.	4
Hofius Steel & Equipment Co., Seattle, Wash.	278
Homestead Steel Works	40
Hostetter Connellsville Co.	7
Hudson Coal Co. (See D & H)	854
Hydro Electric Power Co.	20
Inspiration Cons. Copper Co.	19
International Nicker Co.	3
International Paper Co.	5
Ironton Solvay Co.	4
Irwin Gas Coal Co.	6
Jamison Coal Co.	8
Jermyn & Co.	5
Jeddo Highland Coal Co. (See Markle & Co.)	89
Jones & Laughlin	4
Kanawha Hocking C & C Co.	4
Keota Mining Co., Ohio.	6
Kendall Lumber Co.	4
Ky. River Poplar Co.	6
Keystone C & C Co.	4
Kingston Coal Co.	8
Kirby Lumber Co.	41
Kirk Dunn Coal Co., O.	2
Lacka. Iron & Steel Co.	32
Lacka. Lumber Co.	9
LaFollette Iron Co.	4
Lavelle Coal Co., Okla.	5
Leggetts Creek Coal Co.	5
Lehigh Coal & Nav. Co.	366
Lehigh Valley Coal Co.	311
Lehigh & Portland Cement Co.	4
Lehigh & Wilkes-Barre C. Co.	126
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Loomis Cons. Co.	6
Low Moor Iron Co.	10
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Mid Valley Coal Co.	7
Mill Creek Coal Co.	5
Mineral Fuel Co.	2
Missionfield Coal Co.	2
Mitsui Co., Japan.	42
Moffatt Coal Co., Calif.	4
McGregor Coal Co.	2
McKell Coal & Coke Co.	4
McKinney Steel Co.	24
McTurk Coal Co.	3
New River Coal Co.	4
New River Collieries Co.	17
New River & Poca. Coal Co.	12
New River Smokeless Coal Co.	3
New Jersey Zinc Co.	6
Nevada Cons. Copper Co.	19
Northern Lumber Co.	7
Oak Hill Coal Co.	5
Ohio Iron & Mining Co.	2
Old Virginia Coal Co.	4
Osgood Bradley Co., Mass.	210
Owl Creek Coal Co., Ky.	4
Pacific Car & Foundry Co., Seattle, Wash.	25
Page Coal & Coke Co.	10
Pardee & Co., Pa.	21
Pardee & Curtain Lumber Co.	13
Penn. Collieries Co., Ind.	6
Penn. Coal Co.	575
Penn. Steel Co.	5
Penn. Coal & Coke Co.	4
Phila. & Reading C & I Co.	278
Pidgeon Thomas Iron Co., Memphis, Tenn.	14
Pine Hill Coal Co., Pa.	10
Piney Coal & Coke Co., W. Va.	4
Pittsburgh Coal Co.	31
Pittsburgh Crucible Steel	10
Pittsburgh Mining Co.	4
Pittsburgh Gage & Supply Co.	454
Pocohontas Cons. Coal Co.	5
Pocahontas Fuel Co.	6
Poland Coal Co.	6
Price & Pancoast Coal Co.	11
Raffel Hermann, Copenhagen, Denmark	144
Railway Equipment Co., Portland, Ore.	113
Railway Equipment Co., Seattle, Wash.	54
Raven Run Coal Co.	2
Red Ash Coal Co.	9
Red River Lumber Co.	3
Republic Iron & Steel Co., Pa.	27
Republic Iron & Steel Co., Ala.	13
Republic Iron & Steel Co., Ohio	6
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Roda Lumber Co.	13
Scranton Coal Co.	37
Scranton Supply & Mach. Co.	99
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Standard Oil Co.	8
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Susquehanna Coal Co.	79
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Temple Coal Co.	11
Tennessee Coal & Iron Co.	40
Thomas Colliery Co.	8
Three States Lbr. Co.	2
Tioga Coal Co.	9
Traitors Coal Co., Pa.	4
Turner Supply Co., Mobile, Ala.	105
Union Pacific Coal Co.	2
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U. S. Aluminum Co.	2
U. S. Coal & Coke Co.	3
U. S. Fuel Co.	9
U. S. Government	109
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Valley Camp Coal Co.	9
Valley Smokeless Coal Co.	6
Verner Coal & Coke Co.	4
Vesta Coal Co.	14
Vinton Coal Co.	3
Va. Iron, Coal & Coke Co.	9
Va. Mining Co.	4
Va. Ry. & Power Co.	6
Von Stork Coal Co., Scranton, Pa.	4
Vulcan Iron Works	108
Wayne Coal Co.	4
Wentz & Co.	11
West End Coal Co.	28
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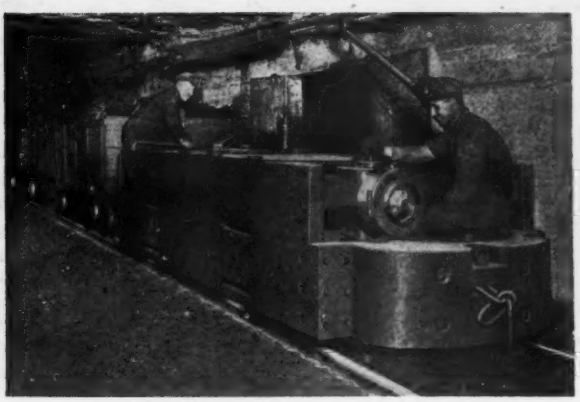
Wheeling Steel & Iron Co.	3
Wilkes-Barre Colliery Co.	5
Winston Coal Co.	11
Wisconsin Iron & Steel Co.	21
Woodward Iron & Steel Co.	6
Woodward Wright & Co., New Orleans, La.	376
World Wide Trading Co., Cuba	12
Wyatt Coal Co.	4
Wyoming Coal Co.	4



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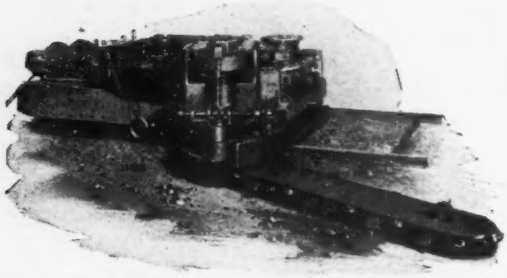

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In every department of Coal Mining and Handling, Jeffrey has originated machinery or devised new improvements to facilitate the work of both miner and operator.

Jeffrey was known a half century ago as the pioneer maker of coal mine equipment, and, through force of initiative and scope of operations, Jeffrey, still the leading manufacturer, continues to be known everywhere in the coal fields of today.

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